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100 Crystal Run Road, Suite 101, Middletown, NY, 10941  
T 845.695.0200 | F 845.692.5894 | W [www.cornerstoneeeg.com](http://www.cornerstoneeeg.com)

*Via Electronic and US Mail*

March 18, 2016

Joseph A. Gowers  
Remedial Project Manager  
Emergency and Remedial Response Division  
USEPA Region II  
290 Broadway, 19<sup>th</sup> Floor  
New York, New York 10007-1866

Re: Ringwood Mines/Landfill Superfund Site  
January 2016 Additional PMP Overburden Wells  
Supplemental Groundwater Investigation

Dear Mr. Gowers:

On January 28, 2016, Cornerstone Engineering Group, LLC, on behalf of Ford Motor Company (Ford), conducted groundwater sampling at the two additional overburden groundwater monitoring well locations OB-31 and OB-32. These two wells were installed in early January 2016 in accordance with a November 6, 2015 Work Plan that was approved for implementation by USEPA during a December 4, 2015 teleconference and subsequent confirming email from Gary DiPippo of Cornerstone. The two new overburden wells are located down gradient of the Peters Mine Pit (PMP) and are shown on the attached Figure excerpted from the November 6, 2015 Work Plan referenced above.

The initial objective for installation and sampling of wells OB-31 and OB-32 was to provide additional overburden groundwater quality data, specifically with respect to benzene concentrations, at a point intermediately located between the PMP Area near existing wells OB-20B and OB-19B and existing wells located farther down gradient (i.e., OB-11R and OB-27). An additional objective for sampling of these wells is also to provide more information regarding the occurrence and/or distribution of 1,4-dioxane concentrations in the PMP Area. Data from these new wells will be evaluated, along with data from existing wells, to assess the influence of natural attenuation and degradation processes as part of the OU-3 Remedial Investigation (RI) Report Addendum for Site-Related Groundwater.

At each of the well locations, groundwater samples were collected using low-flow sampling methodology. Field sampling data sheets are attached for reference. The collected samples were

submitted under chain-of-custody to Test America Laboratories for analysis of Target Compound List (TCL) Volatile Organic Compounds (VOCs) plus the next 15 tentatively identified compounds (TICs), and monitored natural attenuation (MNA) parameters (including field testing for ferrous iron and manganese). Samples were also sent under chain-of-custody to Accutest Laboratories for analysis of 1,4-dioxane using Method 8270 SIM, as discussed previously with the USEPA and NJDEP.

Field data collected at the time of sampling are summarized in Table 1. Consistent with prior submittals, analytical data are organized by providing three summary tables (Tables 2A – 2C) including a table of detected (i.e., only those locations and parameters for which there were detected constituents) VOC parameters, including 1,4-dioxane, a table summarizing the complete VOC data set (i.e., all locations and parameters), and a table summarizing the MNA parameters. Since this is the first sampling event for these wells, a table of historic results typically provided as part of prior sampling reports, is not included.

Full laboratory reports showing the analytical results and chain-of-custody documentation for the samples are also attached for reference. Data validation of the analytical results was performed by Cadena, and the data validation reports are enclosed.

The results of the sampling event are summarized as follows:

- Concentrations of VOCs in overburden groundwater at OB-31 and OB-32 were generally non-detect, with four compounds detected at low to estimated (J qualified) concentrations in one or both wells (see Table 2A);
- Benzene is reported at an estimated concentration of 0.1J ug/L at OB-31 and was not detected at OB-32, well below the New Jersey Groundwater Quality Standard (NJGWQS) for benzene of 1.0 ug/L. No other VOCs were reported, including no chloroethane which is a constituent historically reported at other PMP groundwater sampling locations;
- Only a trace of 1,4-dioxane is reported in groundwater at OB-31 at 0.414 ug/L and is the only organic constituent reported above its Interim Specific NJGWQS of 0.4 ug/L. 1,4-dioxane was not reported in groundwater at the well OB-32 location; and
- As shown in Tables 1 and 2C, groundwater at the OB-31 and OB-32 locations exhibits reducing conditions which is consistent with data from other PMP Area wells. In addition, concentrations of iron and manganese are elevated but consistent with historic concentration ranges as anticipated based on the geology/mineralogy of the site. A detailed evaluation of these and other MNA parameters will be incorporated into the RI Report Addendum; and these supplemental RI data will be incorporated into a RI Report Addendum consistent with the results of prior sampling as called for in the USEPA letter dated June 24, 2015.

Mr. Joseph A. Gowers

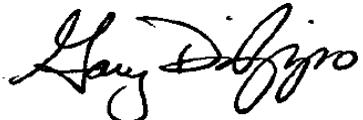
March 18, 2016

Page 3

Please contact us if you have questions or comments on the enclosed submittal.

Sincerely,

CORNERSTONE ENGINEERING GROUP, LLC



Gary J. DiPippo, Professional Engineer.

NJ Lic. # 24GE02646100

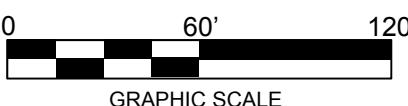
Region Vice President

Enclosure

cc:	B. Bussa, Ford	L. Dodge, Excel Environmental Resources, Inc.
	T. Green, Ford OGC	R. Harwood, Excel Environmental Resources, Inc.
	J. Lagrotteria, LeClairRyan D.	S. Heck, Borough of Ringwood
	Laguzza, LeClairRyan	W. Monahan, Sedita, Campisano & Campisano
	K. Petrone, NJDEP	C. Coslett, de maximis
	Greg Albright, Arcadis	



NOTE: WELL LOCATIONS ARE APPROXIMATE AND MAY BE ADJUSTED SLIGHTLY IN THE FIELD  
BECAUSE OF SITE ACCESS AND RELIC MINE STRUCTURES



PREPARED BY:  
CORNERTSTONE ENGINEERING AND LAND SURVEYING, PLLC

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## **PROPOSED LOCATIONS OF ADDITIONAL PMP OVERTBURDEN MONITORING WELLS**

Ringwood Mines/Landfill Superfund Site  
Ringwood, New Jersey  
Site-Related Groundwater

Map Source: "Overburden Well Locations and Groundwater Contours in the Peters Mine Pit, July 2012", ARCADIS, February 2014.

FIGURE NO.  
**1**  
PROJECT NO.  
**150648**

**Table 1**  
**Summary of Field Parameters at Sampling Time - Overburden Wells - January 2016**

**Ringwood Mines/Landfill Superfund Site**

Well ID	Sample Date	Sample Time	Sample Method	Minutes elapsed	Rate (ml/m)	Turbidity (NTUs)	ORP (mV)	pH (SI Units)	Conductivity (mmhos/cm)	Temp (°C)	Depth to Water (feet)	Diss. Oxygen (mg/L)	Iron (mg/L)	Manganese (mg/L)
OB-31	1/28/2016	12:31	Low Flow	55	140	24.3	-235	6.37	0.179	9.90	14.69	0.18	5.2	3
OB-32	1/28/2016	10:01	Low Flow	50	235	3.5	-300	6.10	0.273	10.10	16.29	0.10	3	3

**Notes:**

°C = degrees Celsius

mg/L = milligrams per liter

ml/m = milliliters per minute

mmhos/cm = millimhos per centimeter

mV = millivolts

NTU = Nephelometric Turbidity Unit

ORP = oxidation-reduction potential

SU = Standard Units

TABLE 2A  
SUMMARY OF DETECTED ORGANIC COMPOUNDS IN GROUNDWATER  
JANUARY 2016  
RINGWOOD MINES/LANDFILL SUPERFUND SITE

Parameter	Result Unit	NJGWQS ug/l	OB-31	OB-32
Benzene	ug/l	1	0.1 J	
Chloroethane	ug/l	5	2.5	
Cyclohexane	ug/l			0.28 J
1,4-Dioxane*	ug/l	0.4	0.414	

\* Analyzed via 8270 SIM

Result exceeds NJGWQS (NJAC 7:9C March 2014)

TABLE 2B  
SUMMARY OF ORGANIC COMPOUNDS IN GROUNDWATER  
JANUARY 2016  
RINGWOOD MINES/LANDFILL SUPERFUND SITE

Parameter	Result Unit	NJGWQS ug/l	OB-31	OB-32
1,1,1-Trichloroethane	ug/l	30	0.28 U	0.28 U
1,1,2,2-Tetrachloroethane	ug/l	1	0.19 U	0.19 U
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/l		0.34 UJ	0.34 UJ
1,1,2-Trichloroethane	ug/l	3	0.08 U	0.08 U
1,1-Dichloroethane	ug/l	50	0.24 U	0.24 U
1,1-Dichloroethene	ug/l	1	0.34 U	0.34 U
1,2,3-Trichlorobenzene	ug/l		0.35 U	0.35 U
1,2,4-Trichlorobenzene	ug/l	9	0.27 U	0.27 U
1,2-Dibromo-3-Chloropropane	ug/l	0.02	0.007 U	0.007 U
1,2-Dichlorobenzene	ug/l	600	0.22 U	0.22 U
1,2-Dichloroethane	ug/l	2	0.25 U	0.25 U
1,2-Dichloropropane	ug/l	1	0.18 U	0.18 U
1,3-Dichlorobenzene	ug/l	600	0.33 U	0.33 U
1,4-Dichlorobenzene	ug/l	75	0.33 U	0.33 U
2-Butanone (MEK)	ug/l	300	2.2 U	2.2 U
2-Hexanone	ug/l	300	0.72 U	0.72 U
4-Methyl-2-pentanone (MIBK)	ug/l		0.63 U	0.63 U
Acetone	ug/l	6000	1.1 U	1.1 U
Benzene	ug/l	1	0.1 J	0.09 U
Bromoform	ug/l	4	0.18 U	0.18 U
Bromomethane	ug/l	10	0.18 U	0.18 U
Carbon disulfide	ug/l	700	0.22 U	0.22 U
Carbon tetrachloride	ug/l	1	0.33 U	0.33 U
Chlorobenzene	ug/l	50	0.24 U	0.24 U
Chlorobromomethane	ug/l		0.3 U	0.3 U
Chlorodibromomethane	ug/l	1	0.22 U	0.22 U
Chloroethane	ug/l	5	2.5	0.37 U
Chloroform	ug/l	70	0.22 U	0.22 U
Chloromethane	ug/l		0.22 U	0.22 U
cis-1,2-Dichloroethene	ug/l	70	0.26 U	0.26 U
cis-1,3-Dichloropropene	ug/l		0.16 U	0.16 U
Cyclohexane	ug/l		0.26 U	0.28 J
Dichlorobromomethane	ug/l	1	0.15 U	0.15 U
Dichlorodifluoromethane	ug/l	1000	0.14 U	0.14 U
Ethylbenzene	ug/l	700	0.3 U	0.3 U
Ethylene Dibromide	ug/l	0.03	0.006 U	0.006 U
Isopropylbenzene	ug/l	700	0.32 U	0.32 U
Methyl acetate	ug/l	7000	0.58 UJ	0.58 UJ
Methyl tert-butyl ether	ug/l		0.13 U	0.13 U
Methylcyclohexane	ug/l		0.22 U	0.22 U
Methylene Chloride	ug/l	3	0.21 U	0.21 U
Styrene	ug/l	100	0.17 U	0.17 U
Tetrachloroethene	ug/l	1	0.12 U	0.12 U
Toluene	ug/l	600	0.25 U	0.25 U
trans-1,2-Dichloroethene	ug/l	100	0.18 U	0.18 U
trans-1,3-Dichloropropene	ug/l		0.19 U	0.19 U
Trichloroethene	ug/l	1	0.22 U	0.22 U
Trichlorofluoromethane	ug/l	2000	0.15 U	0.15 U
Vinyl chloride	ug/l	1	0.06 U	0.06 U
Xylenes, Total	ug/l	1000	0.28 U	0.28 U
1,4-Dioxane*	ug/l	0.4	0.414	0.056 U

\* Analyzed via 8270 SIM

Result exceeds NJGWQS (NJAC 7:9C March 2014)

**TABLE 2C**  
**SUMMARY OF MONITORED NATURAL ATTENUATION PARAMETERS IN GROUNDWATER**  
**JANUARY 2016**  
**RINGWOOD MINES/LANDFILL SUPERFUND SITE**

<b>Parameter</b>	<b>Result</b>	<b>NJGWQS</b>		
	<b>Unit</b>	<b>mg/l</b>	<b>OB-31</b>	<b>OB-32</b>
Alkalinity	mg/l		111	195
Chloride	mg/l	250	2.06	2.23
Manganese	mg/l	0.05	5.92	8.75
Methane	mg/l		6	8.2
Nitrate as N	mg/l	10	0.026 U	0.099 J
Nitrite as N	mg/l	1	0.069 J	0.075 J
Sulfate	mg/l	250	1.93	0.68
Sulfide	mg/l		0.82 U	0.82 U
Total Organic Carbon	mg/l		2.4	3.2

Result exceeds NJGWQS (NJAC 7:9C March 2014)

Cornerstone

## Groundwater Sampling Form

Project Number:	150648	Task:	7	Well ID: OB-31
Date:	1/28/16	Sampled By:	John Skurant	
Sampling Time:	12:31	Recorded By:	John Skurant	
Weather:	Sunny / cold / clear / 30F	Replicate/Split:	N/A	

## **INSTRUMENT IDENTIFICATION**

	PID	Water-Level Meter	Water Quality Meter(s)	
Serial #:	MiniRAE	Solinist	Horbia U-52	Hatch / La Motte

## PURGING INFORMATION

Casing Material:	PVC	Purge Method:	Low -flow- Bladder pump
Casing Diameter:	2 inch	Screen Interval:	20 - 30 ft
Total Depth:	30.00 ft	Pump intake depth:	28.0 ft
Depth to Water:	14.61 ft		
Water Column:	15.39	Total Volume Purged:	2 gallons
Gallons/Foot:	0.1600	Pump on:	11:35 Off: 12:45
Gallons in Well:	2.46		

## FIELD PARAMETERS

#### **OBSERVATIONS DURING SAMPLING**

Well Condition: Good  
Color: Clear  
Odor: Slight

Cornerstone

## Groundwater Sampling Form

Project Number:	150648	Task:	7	Well ID:	OB-32
Date:	1/28/16	Sampled By:	John Skurant		
Sampling Time:	10:01	Recorded By:	John Skurant		
Weather:	sunny / cold / clear / 30F	Replicate/Split:	N/A		

## **INSTRUMENT IDENTIFICATION**

	PID	Water-Level Meter	Water Quality Meter(s)	
Serial #:	MiniRAE	Solinist	Horbia U-52	Hatch / La Motte

## PURGING INFORMATION

Casing Material:	PVC	Purge Method:	Low flow - bladder Pump
Casing Diameter:	2 inch	Screen Interval:	10.00 - 20.00 ft
Total Depth:	20.00 ft	Pump intake depth:	19.00 ft
Depth to Water:	16.29		
Water Column:	3.51	Total Volume Purged:	3.0 gallons
Gallons/Foot:	0.1595	Pump on:	9:10 Off: 10:15
Gallons in Well:	0.56		

## FIELD PARAMETERS

### **OBSERVATIONS DURING SAMPLING**

Well Condition: good  
Color: Clear  
Odor: None

Purge Water Disposal: Contained  
Turbidity(qualitative): Clear  
Other (OVA, HNU,etc.): N/A



E-Mail Date: 2016-02-29  
E-Mail To: tim.roeper@cornerstoneeg.com  
cc:

U.S. Mail: Tim Roeper  
Cornerstone Environmental Group  
100 Crystal Run Road, Suite 101  
Middletown, NY 10941

**ANALYTICAL DATA VALIDATION REPORT**  
Ringwood Mines/Landfill  
Ford Motor Company  
**PROJECT** not available  
**CADENA PROJECT E203361**  
**SAMPLES COLLECTED** January 28, 2016  
**DATA PACKAGE RECEIVED** February 25, 2016  
**SUBMITTAL #:** 460-108718-1

**PREPARED BY:**  
**CADENA, INC.**  
1099 Highland Drive  
Ann Arbor, MI 48108  
Telephone: 517-819-0356  
Fax: 734-975-6709  
Contact: Jim Tomalia ([jtomalia@cadenaco.com](mailto:jtomalia@cadenaco.com))  
Date: 2016-02-29  
[www.CADENACO.com](http://www.CADENACO.com)

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APPENDIX 3	ANALYTICAL RESULTS SUMMARY
APPENDIX 4	QUALFIED RESULTS SUMMARY
APPENDIX 5	SAMPLE HOLDING TIME AND PRESERVATION REQUIREMENTS

**LIST OF ATTACHMENTS**

ATTACHMENT A	CHAIN OF CUSTODY DOCUMENT(S)
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## **1.0 INTRODUCTION**

The following document details an assessment of the analytical data reported by TestAmerica-Edison, New Jersey (TKN and RSK-175 analysis subcontracted to TestAmerica-Nashville lab) for the data in the submittals listed below which were collected from the Ringwood Mines/Landfill site as noted. A sampling and analysis summary that lists all sample ID's and testing as related to the laboratory submittal numbers is presented in Appendix 1. A summary of all of the analytical data is presented in Appendix 3. Copies of sample Chain of Custody (COC) documents and cooler receipt forms for samples discussed in this report are included in Attachment A.

***Table 1.1***

<b>Laboratory Submittal</b>	<b>Sample Date</b>	<b>Laboratory Receipt Date</b>
460-108178-1	1/28/2016	1/28/2016

The samples noted below were validated against the associated method/parameter in order to achieve the validation requirements for this SDG:

***Table 1.2***

<b>Parameter</b>	<b>Reference Method</b>	<b>Samples or Analytes Validated</b>
Volatile Organics	OSW-8260C and SIM	DKQP plus TIC's
KERR Method Diss Gases	RSK-175	Methane
Metals (total)	OSW-6020A	Manganese
Alkalinity, Bicarbonate	SM2320B	ALL
Alkalinity, Carbonate	SM2320B	ALL
Inorganic Ions	EPA300/SW846 9056A	Cl, Br, F, SO4
Nitrate, Nitrite Nitrogen	SM 4500 NO F	NO3, NO2
Nitrate+Nitrite Nitrogen	CALCULATION	ALL
Sulfide	SM4500 S2-F	ALL
TKN	EPA 351.2	ALL
TOC	SW846 9060A	ALL

All "SW" analytical methods were referenced from "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", Third Edition, November 1986 (with all subsequent revisions). The "SM" analytical method was referenced from the "Standard Methods for the Examination of Water and Waste water", latest promulgated revision. "EPA" methods were referenced from the revisions noted.

Laboratory Standard Operating Procedures (SOPs) associated with the methods utilized for this laboratory submittal were not available to CADENA for the purpose of validating this SDG.

Level IV data review provides a comprehensive or extensive review of the analytical data allowing for the complete reconstruction of the chemical analysis. A Level IV (Tier 3) data review was performed on the samples listed in Table 1.2 above by (CADENA).

All of the data that was recalculated was consistent with the reported results to within at least 2 significant figures. Final results may not recalculate exactly beyond this level of precision, in some cases, due to differences in available significant figures between the hardcopy raw data provided and the data utilized for calculations by the laboratory that came directly from the instrument. A table of the laboratory documents reviewed in preparing this report is included in Appendix 2.

The data was reviewed in accordance with the analytical methods and the documents listed below: (NOTE: laboratory criteria – control limits – were utilized to evaluate the data where available. Comparison to NFG criteria are noted when lab criteria was not available or for informational purposes when lab data exceeds NFG criteria).

- i.) "Standard Operating Procedure HW-6 Rev12 March 2001: CLP Organics Data Review and Preliminary Review" USEPA Region 2 as identified in project QAPP.
- ii.) "Standard Operating Procedure HW-2, Rev11, Jan 1992: Evaluation of Metals Data for the CLP Program" as identified in the project QAPP.

The Level VI review findings are presented in the following subsections.

An overview of the review findings is presented in table format. Several data qualifier flags were utilized in the review process. The definitions of these qualifier flags are as follows:

- J Indicates an estimated value.
- U Indicates the compound or analyte was analyzed for, but not detected at or above the stated limit.
- UJ The analyte/compound was not detected above the reported sample quantitation limit. However, the quantitation limit is considered to be approximate due to associated quality assurance results.
- UB The analyte was detected in the sample at a level between the MDL and RDL. For organics the sample concentration for common lab contaminates was less than 10 times the blank concentration or 5 times for other organic compounds and for inorganics the sample concentration was less than 10 times the blank concentration. The sample result should be considered non-detect at the reporting limit.
- B The analyte was detected in the sample at a level above the RDL. For organics the sample concentration for common lab contaminates was less than 10 times the blank concentration or 5 times for other organic compounds and for inorganics the sample concentration was less than 10 times the blank concentration. The sample result should be considered non-detect at the concentration reported.
- R The analyte/compound results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte/compound cannot be verified.

All flags have been incorporated into the data tables in this report.

## **1.1 VALIDATION QUALIFIER EXECUTIVE SUMMARY**

### **VALIDATION SUMMARY**

Additional data qualifications based on review of the level 4 data package using laboratory criteria provided if required are noted below. Qualifications that would be required based on comparison to NFG criteria are noted where applicable. These qualifications would be added to the database and associated summary tables in the appendices if applicable.

#### **GC/MS VOC-SIM-GC Organics**

GCMS VOC analytical batch 349009 CCV responses were outliers biased low for 1,1,2-trichloro-1,2,2-trifluoroethane and methyl acetate. GCMS VOC results for these analytes for all samples in this submittal should be considered to be estimated and qualified with UJ flags (associated results were all non-detect for these analytes).

#### **Metals**

No additional qualifiers required.

#### **General Chemistry**

TKN sample -002 was qualified as non-detect at the concentration reported with a B flag due to method blank detections. TKN blanks also had detections for the Initial Calibration Blank (ICB) and Continuing Calibration Blank (CCB) confirming the qualification applied as part of the verification review.

The following observations **DID NOT** result in qualification but were noted during the validation review:

#### **GC/MS VOC**

Certificates of analysis for standards and all working/primary standard concentrations that are required to verify calibration standard concentrations and spike levels were not available in the laboratory data package for review.

#### **RSK-175, METALS, SULFIDE, TKN, INORGANIC IONS, TOC, ALKALINITY**

No additional qualifiers required.

### **VERIFICATION SUMMARY**

The following qualifications and associated data flags were applied based on the initial level 2 review of this data package.

GCMS VOC analytical batch 349009 CCV outliers as noted in the laboratory submittal case narrative was not used to qualify results as part of this level 2 data package verification review.

GCMS VOC TIC results should be considered to be estimated and qualified with NJ flags unless the TIC

analyte detected is an instrument calibrated compound that is just not part of the TAL for this submittal in which case no qualification is required other than the TIC qualification code or J flag if the result is detected below the RL.

GCMS VOC LCS recoveries were outliers biased low in QC batch 349009 for methyl acetate. Client samples -001, -002, -003 methyl acetate results should be considered to be estimated and qualified with UJ flags.

Dissolved gases QC batch 315678 and TKN QC batch 317402, 317599 MS recovery outliers were not determined using samples from this submittal so qualification of client sample results was not required based on these sample-specific QC outliers.

TKN sample QC batch 315678 did not have sufficient sample available for generating the MSD according to the laboratory submittal case narrative.

TKN QC batch 317402 method blank had a detection below the RL. Client sample -002 TKN result should be considered to be non-detect at the RL and qualified with a B flag.

Nitrite and nitrate sample -001 MS/MSD recoveries were outliers biased low. Client sample -001 nitrite and nitrate results should be considered to be estimated and qualified with J flags.

GCMS VOC trip blank was non-detect for all target analytes.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

## **2.0 VOLATILE ORGANIC COMPOUNDS (VOCs) – METHOD SW846 8260C**

The target analyte list was defined by the client-project as TCL List OLM4.2.

### **2.1 CALIBRATION – GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) VOCs**

#### **2.1.1 TUNING AND MASS CALIBRATION – GC/MS VOCs**

Tuning compounds (Bromofluorobenzene or BFB) were analyzed at the required frequency and met the tuning criteria specified in the method without exception.

#### **2.1.2 INITIAL CALIBRATION – GC/MS VOCs**

Initial calibration data for VOCs were reviewed and met the criteria for instrument sensitivity and linearity of response without exception.

#### **2.1.3 INITIAL CALIBRATION VERIFICATION – GC/MS VOCs**

Initial calibration verification (ICV) standards for VOC analyses were reviewed and met criteria specified by the laboratory with no exceptions.

### **2.2 CONTINUING CALIBRATION – GC/MS VOCs**

Continuing calibration standards were analyzed at the required frequency and the results met the criteria for instrument sensitivity and linearity of response unless otherwise noted in the executive summary noted above and qualified in the data tables.

### **2.3 INTERNAL STANDARDS – GC/MS VOCs**

Internal standard (IS) data were reviewed and met criteria without exception.

### **2.4 SURROGATE SPIKE RECOVERIES – GC/MS VOCs**

If surrogate recoveries are outside of established control limits, presumably due to matrix effects, these interferences must be confirmed by sample re-analysis or other acceptable standard techniques.

If in order to overcome sample matrix interferences or to quantitate elevated target compound levels for an investigative sample, the surrogate results are diluted to below the laboratories limits of quantitation, these surrogate results will not be utilized to qualify data.

All surrogate recoveries were within the established laboratory control limits without exception.

## **2.5 LABORATORY CONTROL SAMPLE ANALYSES - GC/MS VOCs**

A laboratory control sample (LCS) was prepared and analyzed for VOCs. The LCS recoveries were within the laboratory control limits for all compounds of interest unless otherwise noted in the executive summary noted above and qualified in the data tables.

## **2.6 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE ANALYSES - GC/MS VOCs**

All MS/MSD recoveries were within laboratory control limits for precision and accuracy.

CADENA does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

## **2.7 FIELD QA/QC – FIELD DUPLICATE ANALYSES - GC/MS VOCs**

There were no field duplicate comparisons performed as part of this validation request.

## **2.8 TARGET COMPOUNDS AND REQUIRED LIMITS OF DETECTION - GC/MS VOCs**

All target analytes were reported based on comparison to project-specific criteria.

## **2.9 COMPOUND IDENTIFICATION AND QUANTITATION - GC/MS VOCs**

All laboratory target compound identifications and quantitation for the client samples reviewed were acceptable without exception.

## **2.10 TENTATIVELY IDENTIFIED COMPOUNDS - GC/MS VOCs**

Tentatively Identified Compounds (TIC) were reported and should all be considered to be estimated and qualified with NJ flags. TIC results identified as “system artifacts” were qualified by the lab with JB flags as estimated and also found in associated method blank so should be considered to be non-detect at the concentration reported.

## **2.11 BLANKS – METHOD/FIELD/CALIBRATION - GC/MS VOCs**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit with no exceptions.

### **3.0 RSK-175 – KERR METHOD FOR DISSOLVED HYDROCARBON GASES**

The target analyte list was defined for Methane only.

#### **3.1 CALIBRATION – GAS CHROMATOGRAPH – RT and RF**

##### **3.1.1 INITIAL CALIBRATION – DISSOLVED GASES**

Initial calibration data for target analytes were reviewed and met the criteria for instrument retention time and linearity of response without exception.

##### **3.1.2 INITIAL CALIBRATION VERIFICATION – GC**

Initial calibration verification (ICV) standards for analyses were reviewed and met criteria specified by the laboratory with no exceptions.

#### **3.2 CONTINUING CALIBRATION – GC**

Continuing calibration standards were analyzed at the required frequency and the results met the criteria for instrument retention time and linearity of response with no exceptions.

#### **3.3 SURROGATE SPIKE RECOVERIES – GC**

If surrogate recoveries are outside of established control limits, presumably due to matrix effects, these interferences must be confirmed by sample re-analysis or other acceptable standard techniques.

If in order to overcome sample matrix interferences or to quantitate elevated target compound levels for an investigative sample, the surrogate results are diluted to below the laboratories limits of quantitation, these surrogate results will not be utilized to qualify data.

All surrogate recoveries were within the established laboratory control limits unless otherwise noted in the executive summary noted above and qualified in the data tables.

#### **3.4 LABORATORY CONTROL SAMPLE ANALYSES - GC**

A laboratory control sample (LCS) was prepared and analyzed for the target analytes. The LCS recoveries were within the laboratory control limits for all compounds of interest unless otherwise noted in the executive summary noted above and qualified in the data tables.

#### **3.5 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE ANALYSES - GC**

A matrix spike/matrix spike duplicate (MS/MSD) analysis was not determined using client samples in QC batch 315678.

CADENA does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

### **3.6 FIELD QA/QC – FIELD DUPLICATE ANALYSES - GC**

There were no field duplicate comparisons performed as part of this validation request. If field duplicates were reported then a comparison will be performed pending identification of the associated samples as provided by client.

### **3.7 TARGET COMPOUNDS AND REQUIRED LIMITS OF DETECTION - GC**

All target analytes were reported based on comparison to project-specific criteria.

### **3.8 COMPOUND IDENTIFICATION AND QUANTITATION - GC**

All laboratory target compound identifications and quantitation for the client samples reviewed were acceptable without exception.

### **3.9 BLANKS – METHOD/FIELD/CALIBRATION - GC**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit unless noted otherwise below.

## **4.0 METALS – ICP/MS – Method SW846 6020A**

The following metals target analyte list was analyzed as part of this submittal for total metals Manganese only.

### **4.1 INITIAL CALIBRATION**

Initial calibration data met the criteria for linearity of response without exception.

### **4.2 INITIAL CALIBRATION VERIFICATION**

Initial calibration verification (ICV) standards met criteria without exception.

An initial calibration blank (ICB) was analyzed for metals. Metals and were reported as non-detect in each ICB analysis.

### **4.3 CONTINUING CALIBRATION**

Continuing calibration verification (CCV) standards analyses were analyzed at the required frequency and met criteria specified by the laboratory without exception.

The continuing calibration blanks (CCB) were analyzed at the proper frequency and were reported as non-detect without exception.

#### **4.4 INTERFERENCE CHECK STANDARD**

The interference check standard results were reviewed and found to meet criteria.

#### **4.5 INTERNAL STANDARDS**

Internal standard (IS) data were reviewed and found to meet criteria without exception.

#### **4.6 LABORATORY CONTROL SAMPLE ANALYSIS**

A laboratory control sample (LCS) was prepared and analyzed for metals. The LCS recoveries were within the laboratory control limits for all compounds of interest without exception.

#### **4.7 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE (MS/MSD) ANALYSES**

All MS/MSD recoveries were within laboratory control limits for precision and accuracy.

CADENA does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

#### **4.8 CONTRACT REQUIRED DETECTION LIMIT STANDARD ANALYSES**

Each contract required detection limit (CRDL) standard was analyzed at the proper frequency and were within laboratory control limits.

#### **4.9 ICP SERIAL DILUTION**

A serial dilution was performed for this batch but client samples were not used for the determination.

#### **4.10 FIELD QA/QC – FIELD DUPLICATE ANALYSES**

There were no field duplicate comparisons performed as part of this validation request. If field duplicates were reported then a comparison will be performed pending identification of the associated samples as provided by client.

#### **4.11 TARGET ANALYTES AND REQUIRED LIMITS OF DETECTION**

All target analytes were reported based on comparison to project-specific criteria.

#### **4.12 BLANKS – METHOD/FIELD/CALIBRATION**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit unless otherwise noted in the executive summary noted above and qualified in the data tables.

### **5.0 GENERAL CHEMISTRY- ALKALINITY BICARBONATE, ALKALINITY-CARBONATE, TKN, NITRATE, NITRITE, NITRATE+NITRITE, TOC, SULFIDE, BROMIDE, FLUORIDE, SULFATE and CHLORIDE**

#### **5.1 INITIAL CALIBRATION**

Initial calibration data where applicable were reviewed and met the criteria for linearity of response without exception.

#### **5.2 INITIAL CALIBRATION VERIFICATION**

Initial calibration verification (ICV) standards where applicable were reviewed and met criteria specified by the laboratory without exception.

#### **5.3 CONTINUING CALIBRATION**

Continuing calibration verification (CCV) standards where applicable were analyzed at the required frequency and met criteria specified by the laboratory unless otherwise noted in the executive summary noted above and qualified in the data tables.

The continuing calibration blanks (CCB) were analyzed at the proper frequency and were reported as non-detect unless otherwise noted in the executive summary noted above and qualified in the data tables.

#### **5.4 LABORTORY CONTROL SAMPLE ANALYSES**

A laboratory control sample (LCS) was prepared and analyzed where applicable with the exceptions noted below. The LCS recoveries were within the laboratory control limits unless otherwise noted in the executive summary noted above and qualified in the data tables.

#### **5.5 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE ANALYSES**

A matrix spike/matrix spike duplicate (MS/MSD) analysis determined using samples from this submittal had acceptable results unless otherwise noted in the executive summaries noted above and listed in the Qualified Analytical Results (QAR) tables. Method 9056 (TKN) QC batch 317402 and 317599 MS/MSD recovery outliers were not determined using samples from this submittal.

CADENA does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

#### **5.6 FIELD QA/QC – FIELD DUPLICATE ANALYSES**

There were no field duplicate comparisons performed as part of this validation request. If field duplicates were reported then a comparison will be performed pending identification of the associated samples as provided by client.

#### **5.7 TARGET ANALYTES AND REQUIRED LIMITS OF DETECTION**

Required detection limits were not available for comparison. Target analytes reconciled with sample COC.

#### **5.8 BLANKS – METHOD/FIELD/CALIBRATION**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit unless otherwise noted in the executive summary noted above and qualified in the data tables.

### **6.0 REPRESENTATIVENESS EVALUATION**

Representativeness is a qualitative evaluation of whether the data represents actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated.

- i.) For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis.
- ii.) For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis.

Holding times are compared to standard method specific holding times accepted or recommended by the United States Environmental Protection Agency (USEPA). Those holding times outside of USEPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness.

Representativeness was also evaluated by analysis of laboratory method blanks and field equipment blanks. Laboratory method blanks and field equipment blanks are used to identify sources of contamination not associated with environmental conditions.

#### **6.1 SAMPLE PRESERVATION AND HOLDING TIMES**

Sample holding time and preservation requirements are summarized in Appendix 5.

All sample extractions and/or analyses were performed within the specified holding times unless otherwise noted below.

All samples were properly preserved and cooled to 0-6°C after collection.

## **6.2 METHOD BLANK SUMMARY**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit with exceptions noted below if applicable (refer to Appendix 4 for a summary of data qualifications):

No method blank detection exceptions to report unless otherwise noted in validation and verification executive summaries.

Evaluation of blank contamination includes directions on the interpretation of the affected analytical results.

## **7.0 USABILITY AND COMPARABILITY**

Usability of data was evaluated by assuring that all the analytical requests were met, samples were received in the proper condition, and all analyses were performed within the appropriate holding times.

No data evaluated within this delivery group was considered unusable (qualified with an R flag) due to sample integrity, sample matrix interference or batch quality control issues with no exceptions.

## **8.0 QC SUMMARY**

All sample results meet the project specific QAPP standard for usability with exceptions defined by validation and verification qualifiers as applied. Please reference the following tables for a summary of the investigative field sample data and their valid qualifiers based on Level 4 technical review of the analytical data.

## **APPENDIX 1**

## SAMPLING AND ANALYSIS SUMMARY

CADENA Project ID: E203361

**Laboratory:** TestAmerica-Edison

Laboratory Submittal: 108178-1

## **APPENDIX 2**

**APPENDIX 2**  
**LABORATORY DOCUMENTS SUBMITTED FOR REVIEW**  
**TESTAMERICA-EDISON NEW JERSEY LABORATORY**  
**NEW JERSEY FULL PACKAGE MINI FINAL REPORT - LEVEL 4**  
**E203361 - 460-108178-1**  
**January 2016**

<b>Description</b>
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Executive Summary detection highlights
Method Summary
Method/Analyst Summary
Sample Data Sheets
Surrogate Summary
Quality Control Results
Data Qualifiers
QC Summary Association
Lab Chronicle
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Check Sample recoveries (form III)
Matrix spike/Matrix spike duplicate report (form III)
Method blank report (form IV)
Tuning and mass calibrations (form V)
Internal Standard and RT area summary (form VIII)
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Ion profiles of detected target analyte peaks
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ICAL Raw integration data from instrument
ICAL Total Ion Profile Chromatogram
ICV check standard recovery report (Form VII)
ICV check standard total ion profile with integration
GCMS VOA Continuing Calibration Data (Form VII)
CCV raw integration data from instrument
CCV Total Ion Profile Chromatogram
Manual integration if applicable
Raw QC Data
Tune information (not included with SIM package)
FORM I - QC data
Method Blank integration/internal standard and total ion profile raw data
LCS and LCSDuplicate integration/internal standard and total ion profile raw data
MS and MSD integration/internal standard and total ion profile raw data
Miscellaneous Data
Run logs
Batch Worksheets (prep)

**APPENDIX 2**  
**LABORATORY DOCUMENTS SUBMITTED FOR REVIEW**  
**TESTAMERICA-EDISON NEW JERSEY LABORATORY**  
**NEW JERSEY FULL PACKAGE MINI FINAL REPORT - LEVEL 4**  
**E203361 - 460-108178-1**  
**January 2016**

Description
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Surrogate recoveries (form II)
Check Sample Recovery data (form III)
Matrix spike/Matrix spike duplicate report (form III)
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Analytical sequence with RT check (Form VIII)
Sample Data
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Continuing Calibration Data (Form VII) with RT Summaries
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CCV chromatogram
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LCS/LCSD sample data report and integration and chromatograms
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**APPENDIX 2**  
**LABORATORY DOCUMENTS SUBMITTED FOR REVIEW**  
**TESTAMERICA-EDISON NEW JERSEY LABORATORY**  
**NEW JERSEY FULL PACKAGE MINI FINAL REPORT - LEVEL 4**  
**E203361 - 460-108178-1**  
**January 2016**

	<b>Description</b>
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MS/MSD (form III)	
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Raw instrument data and chromatography	
Manual Integration (if applicable)	
ICAL (Form VI)	
Raw instrument data and chromatography	
Manual Integration (if applicable)	
CCAL (Form VII)	
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QC DATA (Form I)	
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ICP-MS Serial Dilutions (8-IN)	
Detection Limits Form (9-IN)	
Linear dynamic ranges - ICPMS (11-IN)	
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**APPENDIX 2**  
**LABORATORY DOCUMENTS SUBMITTED FOR REVIEW**  
**TESTAMERICA-EDISON NEW JERSEY LABORATORY**  
**NEW JERSEY FULL PACKAGE MINI FINAL REPORT - LEVEL 4**  
**E203361 - 460-108178-1**  
**January 2016**

<b>Description</b>
<u>GENERAL CHEMISTRY - NITRATE, NITRITE, NITRATE-NITRITE, TOC, TKN, SULFIDE and Alkalinity</u>
Cover Page
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CCV/CCB (Form 2-IN)
METHOD BLANKS (Form 3-IN)
MATRIX SPIKES (Form 5-IN)
Sample DUPLICATES (Form 6-IN)
LCS/LCSD (Form 7A-IN)
Detection Limits Form (9-IN)
Prep log (12-IN)
Analysis Run Logs (13-IN)
Raw Data - instrument sample sequence data and calibration curve data
General Chemistry Batch Worksheets
Shipping and Receiving Documents
COC forms
Cooler Receipt Form, checklist and narrative

### **APPENDIX 3**

## Analytical Results Summary

**CADENA Project ID:** E203361  
**Laboratory:** TestAmerica - Edison  
**Laboratory Submittal:** 108178-1

Sample Name: OB-32-012816				OB-31-012816				TB-012816					
Lab Sample ID: 4601081781				4601081782				4601081783					
Sample Date: 1/28/2016				1/28/2016				1/28/2016					
Analyte	Cas No.	Report Result	Limit	Units	Valid Qualifier	Report Result	Limit	Units	Valid Qualifier	Report Result	Limit	Units	Valid Qualifier
<b>GC/MS VOC</b>													
<u>OSW-8260C</u>													
1,1,1-Trichloroethane	71-55-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,1,2,2-Tetrachloroethane	79-34-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	1.0	ug/l	UJ	ND	1.0	ug/l	UJ	ND	1.0	ug/l	UJ
1,1,2-Trichloroethane	79-00-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,1-Dichloroethane	75-34-3	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,1-Dichloroethene	75-35-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,2,3-Trichlorobenzene	87-61-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,2,4-Trichlorobenzene	120-82-1	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,2-Dichlorobenzene	95-50-1	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,2-Dichloroethane	107-06-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,2-Dichloropropane	78-87-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,3-Dichlorobenzene	541-73-1	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
1,4-Dichlorobenzene	106-46-7	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
2-Butanone (MEK)	78-93-3	ND	5.0	ug/l	---	ND	5.0	ug/l	---	ND	5.0	ug/l	---
2-Hexanone	591-78-6	ND	5.0	ug/l	---	ND	5.0	ug/l	---	ND	5.0	ug/l	---
4-Methyl-2-pentanone (MIBK)	108-10-1	ND	5.0	ug/l	---	ND	5.0	ug/l	---	ND	5.0	ug/l	---
Acetone	67-64-1	ND	5.0	ug/l	---	ND	5.0	ug/l	---	ND	5.0	ug/l	---
Benzene	71-43-2	ND	1.0	ug/l	---	0.10	1.0	ug/l	J	ND	1.0	ug/l	---
Bromoform	75-25-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Bromomethane	74-83-9	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Carbon disulfide	75-15-0	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Carbon tetrachloride	56-23-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Chlorobenzene	108-90-7	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Chlorobromomethane	74-97-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Chlorodibromomethane	124-48-1	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Chloroethane	75-00-3	ND	1.0	ug/l	---	2.5	1.0	ug/l	---	ND	1.0	ug/l	---
Chloroform	67-66-3	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Chloromethane	74-87-3	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,2-Dichloroethene	156-59-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
cis-1,3-Dichloropropene	10061-01-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Cyclohexane	110-82-7	0.28	1.0	ug/l	J	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Dichlorobromomethane	75-27-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Dichlorodifluoromethane	75-71-8	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Ethylbenzene	100-41-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Isopropylbenzene	98-82-8	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Methyl acetate	79-20-9	ND	5.0	ug/l	UJ	ND	5.0	ug/l	UJ	ND	5.0	ug/l	UJ
Methyl tert-butyl ether	1634-04-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Methylcyclohexane	108-87-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Methylene Chloride	75-09-2	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Styrene	100-42-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Tetrachloroethene	127-18-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Toluene	108-88-3	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,2-Dichloroethene	156-60-5	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
trans-1,3-Dichloropropene	10061-02-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichloroethene	79-01-6	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Trichlorofluoromethane	75-69-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Vinyl chloride	75-01-4	ND	1.0	ug/l	---	ND	1.0	ug/l	---	ND	1.0	ug/l	---
Xylenes, Total	1330-20-7	ND	2.0	ug/l	---	ND	2.0	ug/l	---	ND	2.0	ug/l	---
<b>GC/MS SVOC</b>													
<u>OSW-8260CSIM</u>													
1,2-Dibromo-3-Chloropropane	96-12-8	ND	0.020	ug/l	---	ND	0.020	ug/l	---	ND	0.020	ug/l	---
Ethylene Dibromide	106-93-4	ND	0.020	ug/l	---	ND	0.020	ug/l	---	ND	0.020	ug/l	---
<b>GC Other</b>													
<u>RSK-175</u>													
Methane	74-82-8	8.2	0.40	mg/l	---	6.0	0.40	mg/l	---				

## Analytical Results Summary

CADENA Project ID: E203361  
 Laboratory: TestAmerica - Edison  
 Laboratory Submittal: 108178-1

Metals	Analyte	Sample Name: OB-32-012816				OB-31-012816				TB-012816				
		Lab Sample ID: 4601081781				4601081782				4601081783				
		Sample Date: 1/28/2016				1/28/2016				1/28/2016				
		Cas No.	Report Result	Limit	Units	Valid Qualifier	Report Result	Limit	Units	Valid Qualifier	Report Result	Limit	Units	Valid Qualifier
<u>OSW-6020A</u>	Manganese	7439-96-5	8750	8.0	ug/l	---	5920	8.0	ug/l	---				
<b>General Chemistry</b>														
<u>APHA-4500-NO3-F</u>	Nitrate as N	14797-55-8	0.099	0.10	mg/l	J	ND	0.10	mg/l	---				
	Nitrite as N	14797-65-0	0.075	0.10	mg/l	J	0.069	0.10	mg/l	J				
<u>APHA-4500-S2-F</u>	Sulfide	18496-25-8	ND	1.0	mg/l	---	ND	1.0	mg/l	---				
<u>EMSLC-351.2</u>	Kjeldahl Nitrogen as N	E-10264	1.6	0.25	mg/l	---	0.44	0.25	mg/l	B				
<u>OSW-9056A</u>	Chloride	16887-00-6	2.23	0.12	mg/l	---	2.06	0.12	mg/l	---				
	Sulfate	14808-79-8	0.68	0.60	mg/l	---	1.93	0.60	mg/l	---				
<u>OSW-9060</u>	Total Organic Carbon	E-10195	3.2	1.0	mg/l	---	2.4	1.0	mg/l	---				
<b>Prep</b>														
<u>APHA-2320B</u>	Alkalinity	E-14506	195	5.0	mg/l	---	111	5.0	mg/l	---				

## **APPENDIX 4**

## Qualified Results Summary

CADENA Project ID: E203361

Laboratory: TestAmerica - Edison

Laboratory Submittal: 108178-1

	Sample Name:	OB-32-012816				OB-31-012816				TB-012816			
	Lab Sample ID:	4601081781				4601081782				4601081783			
	Sample Date:	1/28/2016				1/28/2016				1/28/2016			
Analyte	Cas No.	Report Result	Report Limit	Valid Units	Valid Qualifier	Report Result	Report Limit	Valid Units	Valid Qualifier	Report Result	Report Limit	Valid Units	Valid Qualifier

### GC/MS VOC

#### OSW-8260C

1,1,2-Trichloro-1,2,2-trifluoroethane	76-13-1	ND	1.0	ug/l	UJ	ND	1.0	ug/l	UJ	ND	1.0	ug/l	UJ
Methyl acetate	79-20-9	ND	5.0	ug/l	UJ	ND	5.0	ug/l	UJ	ND	5.0	ug/l	UJ

### General Chemistry

#### APHA-4500-NO3-F

Nitrate as N	14797-55-8	0.099	0.10	mg/l	J
Nitrite as N	14797-65-0	0.075	0.10	mg/l	J

#### EMLSC-351.2

Kjeldahl Nitrogen as N	E-10264		0.44	0.25	mg/l	B
------------------------	---------	--	------	------	------	---

## **APPENDIX 5**

### EPA Sample Holding Time and Preservation Requirements

<i>Parameter</i>	<i>Reference Method</i>	<i>Matrix</i>	<i>Preservation &amp; Storage</i>	<i>Holding Times</i>
Volatile Organics by GCMS	OSW-8260C/SIM	Water	Acidify pH<2 Refrigeration 0-6°C	14 days
DISSOLVED GASES (Methane)	RSK-175	Water	Acidify pH<2 Refrigeration 0-6°C	14 days
Metals by ICP/ICPMS Spectroscopy	OSW-6010B OSW-6020A	Water	Acidify pH<2 Refrigeration 0-6°C	180 days
Alkalinity	EPA 2320B	Water	Refrigeration 0-6°C	14 days
Total Organic Carbon (TOC)	EPA 9060A	Water	Acidify pH<2 Refrigeration 0-6°C	28 days
Sulfide	SM4500 S2-F	Water	NaOH, Na <sub>2</sub> SO <sub>3</sub> Refrigeration 0-6°C	7 days
Total Kjeldahl Nitrogen (TKN)	EPA 351.2	Water	Acidify pH<2 Refrigeration 0-6°C	28 days
Fluoride, Bromide, Chloride and Sulfate	OSW-9056A	Water	Refrigeration 0-6°C	28 days
Nitrate, Nitrite and Nitrate/Nitrite Nitrogen	SM4500-NO <sub>3</sub> F	Water	Refrigeration 0-6°C	48 hours

**ATTACHMENT A**

**CHAIN OF CUSTODY DOCUMENT(S)**



TestAmerica Edison

777 New Durham Road  
Edison NJ 08817

## Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTS & S

Client Information		Cornerstone Environmental Group, LLC	
Address:	100 Crystal Run Road Suite 101 Middletown NY, 10941		
City:			
State, Zip:			
Phone:	845-695-0252(Tel) tim.roepel@cornerstoneeg.com		
Email:	Project #: 46018935 FORD Ringwood Mines E203361		
Site:	SSOW#:		
Analysis Requested			
<input checked="" type="checkbox"/> Sample: <b>JSD-04</b> Lab #: Franklin, Jannel O E-Mail: jannel.franklin@testamericainc.com			
Due Date Requested: <input type="checkbox"/> TAT Requested (days): <b>Standard</b>			
PO #: 140802-001 (as of 10.6.15) WO #: <b>460-108178</b> Chain of Custody			
Field Filtered Sample (Yes or No): <input type="checkbox"/> Perform MS/MSD (Yes or No): 8280C_DKQP, 8280C_SIM_DKQP 9056A_ORGFM_28D, 9056A_ORGFM_48H 6020A_DKQP - Manganese 2320B - Alkalinity 9080A - Organic Carbon, Total (TOC) SM4500_S2_F - Sulfide RSK_175 - Methane 351.2 - Kjeldahl Nitrogen as N			
Total Number of containers: J - DI Water K - EDTA L - EDA V - MCQA W - pH 4.5 Z - other (specify) Other:			
Job #: <b>108178</b> 			
Special Instructions/Note: <b>SHRT HOLD</b>			
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological			
<b>Deliverable Requested:</b> I, II, III, IV, Other (specify)			
<b>Empty Kit Relinquished by:</b> <i>JK</i>			
Date:	Time:	Method of Shipment: <b>By Air</b>	
Date/Time:	Company	Received By:	Date/Time:
Date/Time:	Company	Received by:	Date/Time:
<b>Cooler Temperature(s) °C and Other Remarks:</b> <b>37</b> <b>34 ° / 44 ° w/ ch. i.o.a 12.6 - 20</b>			
<b>Δ Yes, Δ No:</b>			
<b>Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)</b> <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For   Months			
<b>Special Instructions/QC Requirements:</b>			



E-Mail Date: 2016-02-29  
E-Mail To: tim.roeper@cornerstoneeg.com  
cc:

U.S. Mail: Tim Roeper  
Cornerstone Environmental Group  
100 Crystal Run Road, Suite 101  
Middletown, NY 10941

**ANALYTICAL DATA VALIDATION REPORT**  
Ringwood Mines/Landfill  
Ford Motor Company  
**CLIENT PROJECT NUMBER** - not available  
**CADENA PROJECT** E203361  
**SAMPLES COLLECTED** January 2016  
**SUBMITTAL #:** JC13356-1

**PREPARED BY:**  
**CADENA, INC.**  
1099 Highland Drive  
Ann Arbor, MI 48108  
Telephone: 517-819-0356  
Fax: 734-975-6709  
Contact: Jim Tomalia ([jtomalia@cadenaco.com](mailto:jtomalia@cadenaco.com))  
Date: 2016-02-29  
[www.CADENACO.com](http://www.CADENACO.com)

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APPENDIX 2	LABORATORY DOCUMENTS SUBMITTED FOR REVIEW
APPENDIX 3	ANALYTICAL RESULTS SUMMARY
APPENDIX 4	QUALFIED RESULTS SUMMARY
APPENDIX 5	SAMPLE HOLDING TIME AND PRESERVATION REQUIREMENTS

LIST OF ATTACHMENTS

ATTACHMENT A

CHAIN OF CUSTODY DOCUMENT(S)

## **1.0 INTRODUCTION**

The following document details an assessment of the analytical data reported by Accutest-Dayton New Jersey Laboratory the data in the submittals listed below which were collected from the Ringwood Mines/Landfill site as noted. A sampling and analysis summary that lists all sample ID's and testing as related to the laboratory submittal numbers is presented in Appendix 1. A summary of all of the analytical data is presented in Appendix 3. Copies of sample Chain of Custody (COC) documents and cooler receipt forms for samples discussed in this report are included in Attachment A.

***Table 1.1***

<b><i>Laboratory Submittal</i></b>	<b><i>Sample Date</i></b>	<b><i>Laboratory Receipt Date</i></b>
JC13356-1	2016-01-28	2016-01-28

The samples noted below were validated against the associated method/parameter in order to achieve the validation requirements for this SDG:

***Table 1.2***

<b><i>Parameter</i></b>	<b><i>Reference Method</i></b>	<b><i>Analyte Listing</i></b>
Semi-Volatile Organics	OSW-8270D/SIM	1,4-Dioxane

All “SW” analytical methods were referenced from “Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods”, Third Edition, November 1986 (with all subsequent revisions). The “SM” analytical method was referenced from the “Standard Methods for the Examination of Water and Waste water”, latest promulgated revision. “EPA” methods were referenced from the revisions noted.

Laboratory Standard Operating Procedures (SOPs) associated with the methods utilized for this laboratory submittal were not available to CADENA for the purpose of validating this SDG.

Level IV data review provides a comprehensive or extensive review of the analytical data allowing for the complete reconstruction of the chemical analysis. A Level IV (Tier 3) data review was performed on the samples listed in Table 1.2 above by (CADENA).

All of the data that was recalculated was consistent with the reported results to within at least 2 significant figures. Final results may not recalculate exactly beyond this level of precision, in some cases, due to differences in available significant figures between the hardcopy raw data provided and the data utilized for calculations by the laboratory that came directly from the instrument. A table of the laboratory documents reviewed in preparing this report is included in Appendix 2.

The data was reviewed in accordance with the analytical methods and the documents listed below: (NOTE: laboratory criteria – control limits – were utilized to evaluate the data where available. Comparison to NFG criteria are noted when lab criteria was not available or for informational purposes when lab data exceeds NFG criteria).

- i.) "Standard Operating Procedure HW-6 Rev12 March 2001: CLP Organics Data Review and Preliminary Review" USEPA Region 2 as identified in project QAPP.
- ii.) "Standard Operating Procedure HW-2, Rev11, Jan 1992: Evaluation of Metals Data for the CLP Program" as identified in the project QAPP.

The Level VI review findings are presented in the following subsections.

An overview of the review findings is presented in table format. Several data qualifier flags were utilized in the review process. The definitions of these qualifier flags are as follows:

- J Indicates an estimated value.
- U Indicates the compound or analyte was analyzed for, but not detected at or above the stated limit.
- UJ The analyte/compound was not detected above the reported sample quantitation limit. However, the quantitation limit is considered to be approximate due to associated quality assurance results.
- UB The analyte was detected in the sample at a level between the MDL and RDL. For organics the sample concentration for common lab contaminates was less than 10 times the blank concentration or 5 times for other organic compounds and for inorganics the sample concentration was less than 10 times the blank concentration. The sample result should be considered non-detect at the reporting limit.
- B The analyte was detected in the sample at a level above the RDL. For organics the sample concentration for common lab contaminates was less than 10 times the blank concentration or 5 times for other organic compounds and for inorganics the sample concentration was less than 10 times the blank concentration. The sample result should be considered non-detect at the concentration reported.
- R The analyte/compound results were rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte/compound cannot be verified.

All flags have been incorporated into the data tables in this report.

## 1.1 VALIDATION QUALIFIER EXECUTIVE SUMMARY

### VALIDATION SUMMARY

#### GCMS SVOC/SIM

No additional qualifications were made beyond those determined from level 2 verification review as noted below.

The following observations **DID NOT** result in qualification but were noted during the validation review:

GCMS SVOC – CCV outliers were not associated with analytical batches for client field samples so qualification of client sample results was not required based on these low bias CCV response outliers.

## **VERIFICATION SUMMARY**

The following qualifications and associated data flags were applied based on the initial level 2 review of this data package.

There were no significant QC anomalies or exceptions to report.

Analytical results reported between RDL and MDL are flagged 'J' and considered estimated values.

## **2.0 SEMI-VOLATILE ORGANIC COMPOUNDS (SVOCs) – METHOD SW846 8270D and SIM analysis**

The target analyte list was defined by the client-project as 1,4-dioxane.

### **3.1 CALIBRATION – GAS CHROMATOGRAPH/MASS SPECTROMETER (GC/MS) SVOCs**

#### **2.1.1 TUNING AND MASS CALIBRATION – GC/MS SVOCs**

Tuning compounds (Bromofluorobenzene or BFB) were analyzed at the required frequency and met the tuning criteria specified in the method without exception.

#### **2.1.2 INITIAL CALIBRATION – GC/MS SVOCs**

Initial calibration data for SVOCs were reviewed and met the criteria for instrument sensitivity and linearity of response unless noted otherwise in verification/validation summary.

#### **2.1.3 INITIAL CALIBRATION VERIFICATION – GC/MS SVOCs**

Initial calibration verification (ICV) standards for SVOC analyses were reviewed and met criteria specified by the laboratory with no exceptions.

### **2.2 CONTINUING CALIBRATION – GC/MS SVOCs**

Continuing calibration standards were analyzed at the required frequency and the results met the criteria for instrument sensitivity and linearity of response unless noted otherwise in verification/validation summary

### **2.3 INTERNAL STANDARDS – GC/MS SVOCs**

Internal standard (IS) data were reviewed and met criteria without exception.

### **2.4 SURROGATE SPIKE RECOVERIES – GC/MS SVOCs**

If surrogate recoveries are outside of established control limits, presumably due to matrix effects, these interferences must be confirmed by sample re-analysis or other acceptable standard techniques.

If in order to overcome sample matrix interferences or to quantitate elevated target compound levels for an investigative sample, the surrogate results are diluted to below the laboratories limits of quantitation, these surrogate results will not be utilized to qualify data.

All surrogate recoveries were within the established laboratory control limits unless noted otherwise in verification/validation summary.

## **2.5 LABORATORY CONTROL SAMPLE ANALYSES - GC/MS SVOCs**

A laboratory control sample (LCS) was prepared and analyzed for SVOCs. The LCS recoveries were within the laboratory control limits for all compounds of interest unless noted otherwise in verification/validation summary.

## **2.6 MATRIX SPIKE/MATRIX-SPIKE-DUPLICATE ANALYSES - GC/MS SVOCs**

The MS/MSD recoveries and RPD's were within the laboratory control limits for all compounds of interest unless noted otherwise in verification/validation summary.

CADENA does not have enough information regarding the nature and consistency of the investigative field samples to apply the valid qualifiers to additional samples beyond the parent sample for the MS/MSD outlier. The end data user must determine whether or not to extend qualification based on knowledge of the investigative field samples and project requirements.

## **2.7 FIELD QA/QC – FIELD DUPLICATE ANALYSES - GC/MS SVOCs**

There were no field duplicate comparisons performed as part of this validation request.

## **2.8 TARGET COMPOUNDS AND REQUIRED LIMITS OF DETECTION - GC/MS SVOCs**

All target analytes were reported based on comparison to project-specific criteria. Potential non-conformances with project requirements are noted below:

## **2.9 COMPOUND IDENTIFICATION AND QUANTITATION - GC/MS SVOCs**

All laboratory target compound identifications and quantitation for the client samples reviewed were acceptable without exception.

## **2.10 TENTATIVELY IDENTIFIED COMPOUNDS - GC/MS SVOCs**

Not required for this sampling event or laboratory submittal.

## **2.11 BLANKS – METHOD/FIELD/CALIBRATION - GC/MS SVOCs**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit unless noted otherwise in verification/validation summary.

### **3.0 REPRESENTATIVENESS EVALUATION**

Representativeness is a qualitative evaluation of whether the data represents actual environmental conditions. Representativeness was evaluated using holding time criteria, which reflect the length of time after sample collection that a sample or extract remains representative of environmental conditions. Depending on the analysis, either one or two holding times were evaluated.

- i.) For those analyses that do not include a sample extraction, only one holding time was evaluated: the length of time between sample collection and analysis.
- ii.) For analyses that require sample extraction prior to analysis, two holding times were evaluated: the length of time from sampling until extraction and the length of time from extraction to analysis.

Holding times are compared to standard method specific holding times accepted or recommended by the United States Environmental Protection Agency (USEPA). Those holding times outside of USEPA acceptance criteria are qualitatively evaluated to determine their effect on sample representativeness.

Representativeness was also evaluated by analysis of laboratory method blanks and field equipment blanks. Laboratory method blanks and field equipment blanks are used to identify sources of contamination not associated with environmental conditions.

#### **3.1 SAMPLE PRESERVATION AND HOLDING TIMES**

Sample holding time and preservation requirements are summarized in Appendix 5.

All sample extractions and/or analyses were performed within the specified holding times unless noted otherwise in verification/validation summary.

All samples were properly preserved and cooled to 0-6°C after collection.

#### **3.2 METHOD BLANK SUMMARY**

The method blank results for samples from the SDG covered in this evaluation were all non-detect at the method detection limit unless noted otherwise in verification/validation summary.

Evaluation of blank contamination includes directions on the interpretation of the affected analytical results.

## **4.0 USABILITY AND COMPARABILITY**

Usability of data was evaluated by assuring that all the analytical requests were met, samples were received in the proper condition, and all analyses were performed within the appropriate holding times unless noted otherwise in verification/validation summary

No data evaluated within this delivery group was considered unusable (qualified with an R flag) due to sample integrity, sample matrix interference or batch quality control issues unless noted otherwise in verification/validation summary.

## **5.0 QC SUMMARY**

All sample results meet the project specific QAPP standard for usability with exceptions defined by validation and verification qualifiers as applied. Please reference the following tables for a summary of the investigative field sample data and their valid qualifiers based on Level 4 technical review of the analytical data.

## **APPENDIX 1**

## SAMPLING AND ANALYSIS SUMMARY

**CADENA Project ID:** E203361

**Laboratory:** Accutest Laboratories-Dayton

**Laboratory Submittal:** JC13356

Lab Sample ID	Sample ID	Collection Date (mm/yy/dd)	Collection Time (hh:mm:ss)	OSW-8270D
JC13356-1	OB-32-012816	1/28/2016	10:01:00	X
JC13356-2	OB-31-012816	1/28/2016	12:31:00	X

## **APPENDIX 2**

**TABLE 2**  
**LABORATORY DOCUMENTS SUBMITTED FOR REVIEW**  
**Ford Ringwood Mines**  
**E203361**  
**January 2016**

SDG	Description
JC13356	Cover Page for Technical Report Table of Contents <ul style="list-style-type: none"> <li>Sample Summary</li> <li>Case Narrative/Conformance Summary</li> <li>Summary of Hits</li> <li>Sample Results (Level 2 report)</li> <li>Miscellaneous Forms               <ul style="list-style-type: none"> <li>Chain of Custody</li> <li>Sample Tracking Chronicle</li> <li>Internal Chain of Custody</li> </ul> </li> <li>GC/MS Semi-Volatiles - QC Data Summaries               <ul style="list-style-type: none"> <li>Method Blank Summary</li> <li>Blank Spike Summary</li> <li>MS/MSD Summary</li> <li>Tune Checks</li> <li>Internal Standard Area Summaries</li> <li>Surrogate Recovery Summaries</li> <li>Initial and Continuing Calibration Summaries</li> </ul> </li> <li>GC/MS Semi-Volatiles Raw Data               <ul style="list-style-type: none"> <li>Samples, Method blanks, Blank spikes, MS/MSD                   <ul style="list-style-type: none"> <li>Chromatograms</li> <li>Quantitation Reports</li> <li>Ion profiles of detected target analyte peaks</li> <li>Manual integration comparisons (if applicable)</li> </ul> </li> <li>Instrument Performance Checks (DFTPP, pentachlorophenol, benzidine)</li> <li>Initial and Continuing Calibrations</li> <li>Instrument Run Logs</li> <li>Prep Logs</li> </ul> </li> </ul>

### **APPENDIX 3**

# Analytical Results Summary

CADENA Project ID: E203361

Laboratory: Accutest Laboratories - Dayton

Laboratory Submittal: JC13356

		Sample Name:	OB-32-012816				OB-31-012816			
		Lab Sample ID:	JC13356-1				JC13356-2			
		Sample Date:	1/28/2016				1/28/2016			
Analyte	Cas No.	Report		Valid	Report		Valid			
		Result	Limit		Units	Qualifier		Result	Limit	Units

## GC/MS SVOC

### OSW-8270D

1,4-Dioxane	123-91-1	ND	0.11	ug/l	---	0.414	0.10	ug/l	---
-------------	----------	----	------	------	-----	-------	------	------	-----

## **APPENDIX 4**

NOT REQUIRED FOR THIS REPORT

## **APPENDIX 5**

### EPA Sample Holding Time and Preservation Requirements

<i>Parameter</i>	<i>Reference Method</i>	<i>Matrix</i>	<i>Preservation &amp; Storage</i>	<i>Holding Times</i>
Semi-volatile Organics by GCMS	OSW-8270D-SIM	Water	Refrigeration 0-6°C	7 days Extraction 40 days Analysis

**ATTACHMENT A**  
**CHAIN OF CUSTODY DOCUMENT(S)**



6

## **CHAIN OF CUSTODY**

PAGE    OF

2235 Route 130, Dayton, NJ 08810  
TEL. 732-329-0200 FAX: 732-329-3499/3480  
[www.accutest.com](http://www.accutest.com)

## JC13356: Chain of Custody

Page 1 of 2

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Edison

777 New Durham Road

Edison, NJ 08817

Tel: (732)549-3900

[TestAmerica Job ID: 460-108178-1](#)

Client Project/Site: FORD Ringwood Mines E203361

For:

Cornerstone Environmental Group, LLC

100 Crystal Run Road

Suite 101

Middletown, New York 10941

Attn: Tim Roeper

*Shalini Isaac*

Authorized for release by:

2/25/2016 2:27:11 PM

Shalini Williams, Project Management Assistant II

[shalini.williams@testamericainc.com](mailto:shalini.williams@testamericainc.com)

Designee for

Jannel Franklin, Project Manager I

(732)593-2551

[jannel.franklin@testamericainc.com](mailto:jannel.franklin@testamericainc.com)

### LINKS

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[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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# Definitions/Glossary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Qualifiers

### GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
*	LCS or LCSD is outside acceptance limits.

### GC VOA

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
E	Result exceeded calibration range.
U	Indicates the analyte was analyzed for but not detected.

### HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### Metals

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

### General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.
B	Compound was found in the blank and sample.

## Glossary

### Abbreviation

These commonly used abbreviations may or may not be present in this report.

□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# DATA OF KNOWN QUALITY CONFORMANCE/NON-CONFORMANCE SUMMARY QUESTIONNAIRE

**Laboratory Name:** TestAmerica Edison

**Client:** Cornerstone Environmental Group,  
LLC

**Project Location:** FORD Ringwood Mines E203361

**Project Number:** 460-108178-1

**Laboratory Sample ID(s):** 460-108178-1, 460-108178-2, 460-108178-3

**Sampling Date(s):** 01/28/2016

**List DKQP Methods Used:** 8260C, 8260C SIM, 6020A

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP Data of Known Quality performance standards?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> See case narrative
1A	Were the method specified handling, preservation, and holding time requirements met?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> See case narrative
1B	<i>EPH Method:</i> Was the EPH method conducted without significant modifications? (see Section 11.3 of respective DKQ methods)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody documents(s)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> See case narrative
3	Were samples received at an appropriate temperature ( $4\pm2^{\circ}\text{ C}$ )?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A
4	Were all QA/QC performance criteria specified in the NJDEP DKQP standards achieved?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
5	a) Were reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?  b) Were these reporting limits met?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> See case narrative  <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> See case narrative
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
7	Are project-specific matrix spike and/or laboratory duplicates included in this data set?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

Notes: For all questions to which the response was "No" (with the exception of question #7), additional information should be provided in an attached narrative. If the answer to question #1, #1A, or #1B is "No", the data package does not meet requirements for "Data of Known Quality."

# Case Narrative

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Job ID: 460-108178-1**

**Laboratory: TestAmerica Edison**

Narrative

## CASE NARRATIVE

**Client: Cornerstone Environmental Group, LLC**

**Project: FORD Ringwood Mines E203361**

**Report Number: 460-108178-1**

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) as a result of a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes or interferences which exceed the calibration range of the instrument.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

### RECEIPT

The samples were received on 1/28/2016 3:00 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.4° C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2C of the required temperature or method specified range. For samples with a specified temperature of 4C, samples with a temperature ranging from just above freezing temperature of water to 6C shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

### **VOLATILE ORGANIC COMPOUNDS DKQP AQUEOUS**

Samples OB-32-012816 (460-108178-1), OB-31-012816 (460-108178-2) and TB-012816 (460-108178-3) were analyzed for Volatile organic compounds DKQP Aqueous in accordance with EPA SW-846 Methods 8260C DKQP. The samples were analyzed on 02/04/2016.

The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 460-349009 recovered outside control limits for the following analyte: Methyl Acetate. This analyte was not detected in the associated samples; therefore, the data have been reported.

The continuing calibration verification (CCV) analyzed in batch 460-349009 was outside the method criteria for the following analyte(s): 1,1,2-Trichloro-1,2,2-trifluoroethane and Methyl Acetate. A CCV standard at or below the reporting limit (RL) was analyzed with the affected samples and found to be acceptable. As indicated in the reference method, sample analysis may proceed; however, any detection for the affected analyte(s) is considered estimated.

Methyl acetate failed the recovery criteria low for LCS 460-349009/3. Methyl acetate failed the recovery criteria low for LCSD 460-349009/4.

Refer to the QC report for details.

No other difficulties were encountered during the Volatile organic compounds DKQP Aqueous analysis.

All other quality control parameters were within the acceptance limits.

### **VOLATILE ORGANIC COMPOUNDS (GC-MS) DKQP**

# Case Narrative

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Job ID: 460-108178-1 (Continued)

### Laboratory: TestAmerica Edison (Continued)

Samples OB-32-012816 (460-108178-1), OB-31-012816 (460-108178-2) and TB-012816 (460-108178-3) were analyzed for volatile organic compounds (GC-MS) DKQP in accordance with EPA SW-846 Method 8260B SIM DKQP. The samples were analyzed on 02/03/2016.

No difficulties were encountered during the volatile organic compounds (GC-MS) DKQP analysis.

All quality control parameters were within the acceptance limits.

### DISSOLVED GASES

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for dissolved gases in accordance with RSK\_175. The samples were analyzed on 01/29/2016.

Methane failed the recovery criteria low for the MS of sample 490-96474-1 in batch 490-315678.

Refer to the QC report for details.

Samples OB-32-012816 (460-108178-1)[80X] and OB-31-012816 (460-108178-2)[80X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

No other difficulties were encountered during the dissolved gases analysis.

All other quality control parameters were within the acceptance limits.

### METALS

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for Metals in accordance with EPA SW-846 Method 6020A DKQP. The samples were prepared on 01/29/2016 and analyzed on 02/03/2016.

No difficulties were encountered during the Metals analysis.

All quality control parameters were within the acceptance limits.

### MERCURY, LOW LEVEL

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for Mercury, Low Level in accordance with EPA Method 1631E - Mercury, Low Level (CVAFS). The samples were analyzed on 02/03/2016.

No difficulties were encountered during the Mercury, Low Level analysis.

All quality control parameters were within the acceptance limits.

### ALKALINITY

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for alkalinity in accordance with SM 2320B. The samples were analyzed on 02/03/2016.

No difficulties were encountered during the alkalinity analysis.

All quality control parameters were within the acceptance limits.

### TOTAL KJELDAHL NITROGEN

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for total kjeldahl nitrogen in accordance with EPA Method 351.2. The samples were prepared on 02/10/2016 and analyzed on 02/12/2016.

The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 490-317402 and analytical batch 490-317599 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

## Case Narrative

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

### Job ID: 460-108178-1 (Continued)

#### Laboratory: TestAmerica Edison (Continued)

The method blank, initial calibration blank, continuing calibration blank for preparation batch 490-317402 and analytical batch 490-317599 contained Kjeldahl Nitrogen above the method detection limit. This target analyte concentration was less than the reporting limit (RL); therefore, re-extraction and/or re-analysis of samples was not performed.

Insufficient sample volume was available to perform a matrix spike duplicate (MSD) associated with analytical batch 490-315678.

Kjeldahl Nitrogen as N was detected in method blank MB 490-317402/1-A at a level that was above the method detection limit but below the reporting limit. The value should be considered an estimate, and has been flagged. If the associated sample reported a result above the MDL and/or RL, the result has been flagged.

Kjeldahl Nitrogen as N failed the recovery criteria low for the MSD of sample 490-97124-1 in batch 490-317599.

Refer to the QC report for details.

No other difficulties were encountered during the TKN analysis.

All other quality control parameters were within the acceptance limits.

#### **TOTAL ORGANIC CARBON**

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for Total Organic Carbon in accordance with EPA SW-846 Method 9060A. The samples were analyzed on 02/04/2016.

No difficulties were encountered during the TOC analysis.

All quality control parameters were within the acceptance limits.

#### **NITROGEN-NITRATE**

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for Nitrogen-Nitrate in accordance with SM 4500 NO<sub>3</sub> F. The samples were analyzed on 01/29/2016.

Nitrate as N and Nitrite as N failed the recovery criteria low for the MS/MSD of sample OB-32-012816MS (460-108178-1) in batch 460-348252.

Refer to the QC report for details.

No other difficulties were encountered during the Nitrate analysis.

All other quality control parameters were within the acceptance limits.

#### **SULFIDE**

Samples OB-32-012816 (460-108178-1) and OB-31-012816 (460-108178-2) were analyzed for sulfide in accordance with SM 4500 S2 F. The samples were analyzed on 02/02/2016.

No difficulties were encountered during the sulfide analysis.

All quality control parameters were within the acceptance limits.

## Detection Summary

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: OB-32-012816**

**Lab Sample ID: 460-108178-1**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Cyclohexane	0.28	J	1.0	0.26	ug/L	1		8260C	Total/NA
Methane	8.2		0.40	0.20	mg/L	80		RSK-175	Total/NA
Chloride	2.23		0.12	0.030	mg/L	1		9056A	Total/NA
Sulfate	0.68		0.60	0.11	mg/L	1		9056A	Total/NA
Manganese	8750		8.0	3.0	ug/L	2		6020A	Total/NA
Kjeldahl Nitrogen as N	1.6	B	0.25	0.14	mg/L	1		351.2	Total/NA
Total Organic Carbon	3.2		1.0	0.14	mg/L	1		9060A	Total/NA
Alkalinity	195		5.0	5.0	mg/L	1		SM 2320B	Total/NA
Nitrate as N	0.099	J F1	0.10	0.026	mg/L	1		SM 4500 NO3 F	Total/NA
Nitrite as N	0.075	J F1	0.10	0.0081	mg/L	1		SM 4500 NO3 F	Total/NA

**Client Sample ID: OB-31-012816**

**Lab Sample ID: 460-108178-2**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.10	J	1.0	0.090	ug/L	1		8260C	Total/NA
Chloroethane	2.5		1.0	0.37	ug/L	1		8260C	Total/NA
Methane	6.0		0.40	0.20	mg/L	80		RSK-175	Total/NA
Chloride	2.06		0.12	0.030	mg/L	1		9056A	Total/NA
Sulfate	1.93		0.60	0.11	mg/L	1		9056A	Total/NA
Manganese	5920		8.0	3.0	ug/L	2		6020A	Total/NA
Kjeldahl Nitrogen as N	0.44	B	0.25	0.14	mg/L	1		351.2	Total/NA
Total Organic Carbon	2.4		1.0	0.14	mg/L	1		9060A	Total/NA
Alkalinity	111		5.0	5.0	mg/L	1		SM 2320B	Total/NA
Nitrite as N	0.069	J	0.10	0.0081	mg/L	1		SM 4500 NO3 F	Total/NA

**Client Sample ID: TB-012816**

**Lab Sample ID: 460-108178-3**

  No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Edison

# Client Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: OB-32-012816**

**Lab Sample ID: 460-108178-1**

Date Collected: 01/28/16 10:01

Matrix: Water

Date Received: 01/28/16 15:00

## Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	0.0070	U	0.020	0.0070	ug/L			02/03/16 16:11	1
Ethylene Dibromide	0.0060	U	0.020	0.0060	ug/L			02/03/16 16:11	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	105		70 - 130					02/03/16 16:11	1
4-Bromofluorobenzene	98		70 - 130					02/03/16 16:11	1

## Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.28	U	1.0	0.28	ug/L			02/04/16 16:31	1
1,1,2,2-Tetrachloroethane	0.19	U	1.0	0.19	ug/L			02/04/16 16:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	1.0	0.34	ug/L			02/04/16 16:31	1
1,1,2-Trichloroethane	0.080	U	1.0	0.080	ug/L			02/04/16 16:31	1
1,1-Dichloroethane	0.24	U	1.0	0.24	ug/L			02/04/16 16:31	1
1,1-Dichloroethene	0.34	U	1.0	0.34	ug/L			02/04/16 16:31	1
1,2,3-Trichlorobenzene	0.35	U	1.0	0.35	ug/L			02/04/16 16:31	1
1,2,4-Trichlorobenzene	0.27	U	1.0	0.27	ug/L			02/04/16 16:31	1
1,2-Dichlorobenzene	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
1,2-Dichloroethane	0.25	U	1.0	0.25	ug/L			02/04/16 16:31	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			02/04/16 16:31	1
1,3-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 16:31	1
1,4-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 16:31	1
2-Butanone (MEK)	2.2	U	5.0	2.2	ug/L			02/04/16 16:31	1
2-Hexanone	0.72	U	5.0	0.72	ug/L			02/04/16 16:31	1
4-Methyl-2-pentanone (MIBK)	0.63	U	5.0	0.63	ug/L			02/04/16 16:31	1
Acetone	1.1	U	5.0	1.1	ug/L			02/04/16 16:31	1
Benzene	0.090	U	1.0	0.090	ug/L			02/04/16 16:31	1
Bromoform	0.18	U	1.0	0.18	ug/L			02/04/16 16:31	1
Bromomethane	0.18	U	1.0	0.18	ug/L			02/04/16 16:31	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/04/16 16:31	1
Chlorobenzene	0.24	U	1.0	0.24	ug/L			02/04/16 16:31	1
Chlorobromomethane	0.30	U	1.0	0.30	ug/L			02/04/16 16:31	1
Chlorodibromomethane	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
Chloroethane	0.37	U	1.0	0.37	ug/L			02/04/16 16:31	1
Chloroform	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
Chloromethane	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
cis-1,2-Dichloroethene	0.26	U	1.0	0.26	ug/L			02/04/16 16:31	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			02/04/16 16:31	1
<b>Cyclohexane</b>	<b>0.28</b>	<b>J</b>	1.0	0.26	ug/L			02/04/16 16:31	1
Dichlorobromomethane	0.15	U	1.0	0.15	ug/L			02/04/16 16:31	1
Dichlorodifluoromethane	0.14	U	1.0	0.14	ug/L			02/04/16 16:31	1
Ethylbenzene	0.30	U	1.0	0.30	ug/L			02/04/16 16:31	1
Isopropylbenzene	0.32	U	1.0	0.32	ug/L			02/04/16 16:31	1
Methyl acetate	0.58	U *	5.0	0.58	ug/L			02/04/16 16:31	1
Methyl tert-butyl ether	0.13	U	1.0	0.13	ug/L			02/04/16 16:31	1
Methylcyclohexane	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
Methylene Chloride	0.21	U	1.0	0.21	ug/L			02/04/16 16:31	1
Styrene	0.17	U	1.0	0.17	ug/L			02/04/16 16:31	1
Tetrachloroethylene	0.12	U	1.0	0.12	ug/L			02/04/16 16:31	1

TestAmerica Edison

# Client Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: OB-32-012816**

**Lab Sample ID: 460-108178-1**

Date Collected: 01/28/16 10:01

Matrix: Water

Date Received: 01/28/16 15:00

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene	0.25	U	1.0	0.25	ug/L			02/04/16 16:31	1
trans-1,2-Dichloroethene	0.18	U	1.0	0.18	ug/L			02/04/16 16:31	1
trans-1,3-Dichloropropene	0.19	U	1.0	0.19	ug/L			02/04/16 16:31	1
Trichloroethene	0.22	U	1.0	0.22	ug/L			02/04/16 16:31	1
Trichlorofluoromethane	0.15	U	1.0	0.15	ug/L			02/04/16 16:31	1
Vinyl chloride	0.060	U	1.0	0.060	ug/L			02/04/16 16:31	1
Xylenes, Total	0.28	U	2.0	0.28	ug/L			02/04/16 16:31	1

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					02/04/16 16:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	79		70 - 130		02/04/16 16:31	1
4-Bromofluorobenzene	99		70 - 130		02/04/16 16:31	1
Dibromofluoromethane (Surr)	88		70 - 130		02/04/16 16:31	1
Toluene-d8 (Surr)	89		70 - 130		02/04/16 16:31	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	8.2		0.40	0.20	mg/L			01/29/16 16:26	80

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Acetylene (Surr)	106		62 - 124		01/29/16 16:21	1

## Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.23		0.12	0.030	mg/L			02/03/16 03:01	1
Sulfate	0.68		0.60	0.11	mg/L			02/03/16 03:01	1

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	8750		8.0	3.0	ug/L		01/29/16 07:45	02/03/16 17:49	2

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kjeldahl Nitrogen as N	1.6	B	0.25	0.14	mg/L		02/10/16 15:15	02/12/16 15:09	1
Total Organic Carbon	3.2		1.0	0.14	mg/L			02/04/16 10:02	1
Alkalinity	195		5.0	5.0	mg/L			02/03/16 12:21	1
Nitrate as N	0.099	J F1	0.10	0.026	mg/L			01/29/16 10:54	1
Nitrite as N	0.075	J F1	0.10	0.0081	mg/L			01/29/16 10:54	1
Sulfide	0.82	U	1.0	0.82	mg/L			02/02/16 13:59	1

**Client Sample ID: OB-31-012816**

**Lab Sample ID: 460-108178-2**

Date Collected: 01/28/16 12:31

Matrix: Water

Date Received: 01/28/16 15:00

## Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	0.0070	U	0.020	0.0070	ug/L			02/03/16 16:35	1
Ethylene Dibromide	0.0060	U	0.020	0.0060	ug/L			02/03/16 16:35	1

TestAmerica Edison

# Client Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: OB-31-012816**

**Lab Sample ID: 460-108178-2**

**Matrix: Water**

Date Collected: 01/28/16 12:31  
 Date Received: 01/28/16 15:00

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	104		70 - 130		02/03/16 16:35	1
4-Bromofluorobenzene	97		70 - 130		02/03/16 16:35	1

## Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.28	U	1.0	0.28	ug/L			02/04/16 16:55	1
1,1,2,2-Tetrachloroethane	0.19	U	1.0	0.19	ug/L			02/04/16 16:55	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	1.0	0.34	ug/L			02/04/16 16:55	1
1,1,2-Trichloroethane	0.080	U	1.0	0.080	ug/L			02/04/16 16:55	1
1,1-Dichloroethane	0.24	U	1.0	0.24	ug/L			02/04/16 16:55	1
1,1-Dichloroethene	0.34	U	1.0	0.34	ug/L			02/04/16 16:55	1
1,2,3-Trichlorobenzene	0.35	U	1.0	0.35	ug/L			02/04/16 16:55	1
1,2,4-Trichlorobenzene	0.27	U	1.0	0.27	ug/L			02/04/16 16:55	1
1,2-Dichlorobenzene	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1
1,2-Dichloroethane	0.25	U	1.0	0.25	ug/L			02/04/16 16:55	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			02/04/16 16:55	1
1,3-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 16:55	1
1,4-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 16:55	1
2-Butanone (MEK)	2.2	U	5.0	2.2	ug/L			02/04/16 16:55	1
2-Hexanone	0.72	U	5.0	0.72	ug/L			02/04/16 16:55	1
4-Methyl-2-pentanone (MIBK)	0.63	U	5.0	0.63	ug/L			02/04/16 16:55	1
Acetone	1.1	U	5.0	1.1	ug/L			02/04/16 16:55	1
<b>Benzene</b>	<b>0.10</b>	<b>J</b>	1.0	0.090	ug/L			02/04/16 16:55	1
Bromoform	0.18	U	1.0	0.18	ug/L			02/04/16 16:55	1
Bromomethane	0.18	U	1.0	0.18	ug/L			02/04/16 16:55	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/04/16 16:55	1
Chlorobenzene	0.24	U	1.0	0.24	ug/L			02/04/16 16:55	1
Chlorobromomethane	0.30	U	1.0	0.30	ug/L			02/04/16 16:55	1
Chlorodibromomethane	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1
<b>Chloroethane</b>	<b>2.5</b>		1.0	0.37	ug/L			02/04/16 16:55	1
Chloroform	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1
Chloromethane	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1
cis-1,2-Dichloroethene	0.26	U	1.0	0.26	ug/L			02/04/16 16:55	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			02/04/16 16:55	1
Cyclohexane	0.26	U	1.0	0.26	ug/L			02/04/16 16:55	1
Dichlorobromomethane	0.15	U	1.0	0.15	ug/L			02/04/16 16:55	1
Dichlorodifluoromethane	0.14	U	1.0	0.14	ug/L			02/04/16 16:55	1
Ethylbenzene	0.30	U	1.0	0.30	ug/L			02/04/16 16:55	1
Isopropylbenzene	0.32	U	1.0	0.32	ug/L			02/04/16 16:55	1
Methyl acetate	0.58	U *	5.0	0.58	ug/L			02/04/16 16:55	1
Methyl tert-butyl ether	0.13	U	1.0	0.13	ug/L			02/04/16 16:55	1
Methylcyclohexane	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1
Methylene Chloride	0.21	U	1.0	0.21	ug/L			02/04/16 16:55	1
Styrene	0.17	U	1.0	0.17	ug/L			02/04/16 16:55	1
Tetrachloroethene	0.12	U	1.0	0.12	ug/L			02/04/16 16:55	1
Toluene	0.25	U	1.0	0.25	ug/L			02/04/16 16:55	1
trans-1,2-Dichloroethene	0.18	U	1.0	0.18	ug/L			02/04/16 16:55	1
trans-1,3-Dichloropropene	0.19	U	1.0	0.19	ug/L			02/04/16 16:55	1
Trichloroethene	0.22	U	1.0	0.22	ug/L			02/04/16 16:55	1

TestAmerica Edison

# Client Sample Results

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: OB-31-012816**

**Lab Sample ID: 460-108178-2**

Matrix: Water

Date Collected: 01/28/16 12:31  
Date Received: 01/28/16 15:00

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichlorofluoromethane	0.15	U	1.0	0.15	ug/L			02/04/16 16:55	1
Vinyl chloride	0.060	U	1.0	0.060	ug/L			02/04/16 16:55	1
Xylenes, Total	0.28	U	2.0	0.28	ug/L			02/04/16 16:55	1
Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					02/04/16 16:55	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	80		70 - 130					02/04/16 16:55	1
4-Bromofluorobenzene	103		70 - 130					02/04/16 16:55	1
Dibromofluoromethane (Surr)	91		70 - 130					02/04/16 16:55	1
Toluene-d8 (Surr)	91		70 - 130					02/04/16 16:55	1

## Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane	6.0		0.40	0.20	mg/L			01/29/16 16:35	80
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Acetylene (Surr)	122		62 - 124					01/29/16 16:31	1

## Method: 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.06		0.12	0.030	mg/L			02/03/16 03:22	1
Sulfate	1.93		0.60	0.11	mg/L			02/03/16 03:22	1

## Method: 6020A - Metals (ICP/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	5920		8.0	3.0	ug/L		01/29/16 08:29	02/03/16 17:55	2

## General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kjeldahl Nitrogen as N	0.44	B	0.25	0.14	mg/L		02/10/16 15:15	02/12/16 15:09	1
Total Organic Carbon	2.4		1.0	0.14	mg/L			02/04/16 10:02	1
Alkalinity	111		5.0	5.0	mg/L			02/03/16 12:36	1
Nitrate as N	0.026	U	0.10	0.026	mg/L			01/29/16 10:56	1
Nitrite as N	0.069	J	0.10	0.0081	mg/L			01/29/16 10:56	1
Sulfide	0.82	U	1.0	0.82	mg/L			02/02/16 13:59	1

**Client Sample ID: TB-012816**

**Lab Sample ID: 460-108178-3**

Matrix: Water

Date Collected: 01/28/16 12:31  
Date Received: 01/28/16 15:00

## Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dibromo-3-Chloropropane	0.0070	U	0.020	0.0070	ug/L			02/03/16 14:56	1
Ethylene Dibromide	0.0060	U	0.020	0.0060	ug/L			02/03/16 14:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	98		70 - 130					02/03/16 14:56	1
4-Bromofluorobenzene	96		70 - 130					02/03/16 14:56	1

TestAmerica Edison

# Client Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: TB-012816**  
**Date Collected: 01/28/16 12:31**  
**Date Received: 01/28/16 15:00**

**Lab Sample ID: 460-108178-3**  
**Matrix: Water**

## Method: 8260C - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1-Trichloroethane	0.28	U	1.0	0.28	ug/L			02/04/16 12:06	1
1,1,2,2-Tetrachloroethane	0.19	U	1.0	0.19	ug/L			02/04/16 12:06	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	1.0	0.34	ug/L			02/04/16 12:06	1
1,1,2-Trichloroethane	0.080	U	1.0	0.080	ug/L			02/04/16 12:06	1
1,1-Dichloroethane	0.24	U	1.0	0.24	ug/L			02/04/16 12:06	1
1,1-Dichloroethene	0.34	U	1.0	0.34	ug/L			02/04/16 12:06	1
1,2,3-Trichlorobenzene	0.35	U	1.0	0.35	ug/L			02/04/16 12:06	1
1,2,4-Trichlorobenzene	0.27	U	1.0	0.27	ug/L			02/04/16 12:06	1
1,2-Dichlorobenzene	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
1,2-Dichloroethane	0.25	U	1.0	0.25	ug/L			02/04/16 12:06	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			02/04/16 12:06	1
1,3-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 12:06	1
1,4-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 12:06	1
2-Butanone (MEK)	2.2	U	5.0	2.2	ug/L			02/04/16 12:06	1
2-Hexanone	0.72	U	5.0	0.72	ug/L			02/04/16 12:06	1
4-Methyl-2-pentanone (MIBK)	0.63	U	5.0	0.63	ug/L			02/04/16 12:06	1
Acetone	1.1	U	5.0	1.1	ug/L			02/04/16 12:06	1
Benzene	0.090	U	1.0	0.090	ug/L			02/04/16 12:06	1
Bromoform	0.18	U	1.0	0.18	ug/L			02/04/16 12:06	1
Bromomethane	0.18	U	1.0	0.18	ug/L			02/04/16 12:06	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/04/16 12:06	1
Chlorobenzene	0.24	U	1.0	0.24	ug/L			02/04/16 12:06	1
Chlorobromomethane	0.30	U	1.0	0.30	ug/L			02/04/16 12:06	1
Chlorodibromomethane	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
Chloroethane	0.37	U	1.0	0.37	ug/L			02/04/16 12:06	1
Chloroform	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
Chloromethane	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
cis-1,2-Dichloroethene	0.26	U	1.0	0.26	ug/L			02/04/16 12:06	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			02/04/16 12:06	1
Cyclohexane	0.26	U	1.0	0.26	ug/L			02/04/16 12:06	1
Dichlorobromomethane	0.15	U	1.0	0.15	ug/L			02/04/16 12:06	1
Dichlorodifluoromethane	0.14	U	1.0	0.14	ug/L			02/04/16 12:06	1
Ethylbenzene	0.30	U	1.0	0.30	ug/L			02/04/16 12:06	1
Isopropylbenzene	0.32	U	1.0	0.32	ug/L			02/04/16 12:06	1
Methyl acetate	0.58	U *	5.0	0.58	ug/L			02/04/16 12:06	1
Methyl tert-butyl ether	0.13	U	1.0	0.13	ug/L			02/04/16 12:06	1
Methylcyclohexane	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
Methylene Chloride	0.21	U	1.0	0.21	ug/L			02/04/16 12:06	1
Styrene	0.17	U	1.0	0.17	ug/L			02/04/16 12:06	1
Tetrachloroethene	0.12	U	1.0	0.12	ug/L			02/04/16 12:06	1
Toluene	0.25	U	1.0	0.25	ug/L			02/04/16 12:06	1
trans-1,2-Dichloroethene	0.18	U	1.0	0.18	ug/L			02/04/16 12:06	1
trans-1,3-Dichloropropene	0.19	U	1.0	0.19	ug/L			02/04/16 12:06	1
Trichloroethene	0.22	U	1.0	0.22	ug/L			02/04/16 12:06	1
Trichlorofluoromethane	0.15	U	1.0	0.15	ug/L			02/04/16 12:06	1
Vinyl chloride	0.060	U	1.0	0.060	ug/L			02/04/16 12:06	1
Xylenes, Total	0.28	U	2.0	0.28	ug/L			02/04/16 12:06	1

TestAmerica Edison

# Client Sample Results

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: TB-012816**

**Lab Sample ID: 460-108178-3**

Date Collected: 01/28/16 12:31

Matrix: Water

Date Received: 01/28/16 15:00

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Tentatively Identified Compound	None		ug/L					02/04/16 12:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	84		70 - 130					02/04/16 12:06	1
4-Bromofluorobenzene	106		70 - 130					02/04/16 12:06	1
Dibromofluoromethane (Surr)	92		70 - 130					02/04/16 12:06	1
Toluene-d8 (Surr)	94		70 - 130					02/04/16 12:06	1

# Surrogate Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 8260C - Volatile Organic Compounds by GC/MS

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		12DCE (70-130)	BFB (70-130)	DBFM (70-130)	TOL (70-130)
460-108178-1	OB-32-012816	79	99	88	89
460-108178-2	OB-31-012816	80	103	91	91
460-108178-3	TB-012816	84	106	92	94
LCS 460-349009/3	Lab Control Sample	88	109	95	94
LCSD 460-349009/4	Lab Control Sample Dup	89	108	94	95
MB 460-349009/7	Method Blank	87	105	95	97

**Surrogate Legend**

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene  
DBFM = Dibromofluoromethane (Surr)  
TOL = Toluene-d8 (Surr)

## Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		12DCE (70-130)	BFB (70-130)
460-108178-1	OB-32-012816	105	98
460-108178-2	OB-31-012816	104	97
460-108178-3	TB-012816	98	96
LCS 460-348855/3	Lab Control Sample	103	96
LCSD 460-348855/4	Lab Control Sample Dup	99	92
MB 460-348855/6	Method Blank	103	92

**Surrogate Legend**

12DCE = 1,2-Dichloroethane-d4 (Surr)  
BFB = 4-Bromofluorobenzene

## Method: RSK-175 - Dissolved Gases (GC)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)	
		Acetylene (Surr) (62-124)	Acetylene (Surr) (62-124)
460-108178-1	OB-32-012816	106	—
460-108178-2	OB-31-012816	122	—
490-96474-B-1 MS	Matrix Spike	114	—
LCS 490-315678/5	Lab Control Sample	107	—
LCSD 490-315678/6	Lab Control Sample Dup	114	—
MB 490-315678/4	Method Blank	116	—

**Surrogate Legend**

Acetylene (Surr) = Acetylene (Surr)

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 8260C - Volatile Organic Compounds by GC/MS

**Lab Sample ID: MB 460-349009/7**

**Matrix: Water**

**Analysis Batch: 349009**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,1,1-Trichloroethane	0.28	U	1.0	0.28	ug/L			02/04/16 11:41	1
1,1,2,2-Tetrachloroethane	0.19	U	1.0	0.19	ug/L			02/04/16 11:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.34	U	1.0	0.34	ug/L			02/04/16 11:41	1
1,1,2-Trichloroethane	0.080	U	1.0	0.080	ug/L			02/04/16 11:41	1
1,1-Dichloroethane	0.24	U	1.0	0.24	ug/L			02/04/16 11:41	1
1,1-Dichloroethene	0.34	U	1.0	0.34	ug/L			02/04/16 11:41	1
1,2,3-Trichlorobenzene	0.35	U	1.0	0.35	ug/L			02/04/16 11:41	1
1,2,4-Trichlorobenzene	0.27	U	1.0	0.27	ug/L			02/04/16 11:41	1
1,2-Dichlorobenzene	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
1,2-Dichloroethane	0.25	U	1.0	0.25	ug/L			02/04/16 11:41	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			02/04/16 11:41	1
1,3-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 11:41	1
1,4-Dichlorobenzene	0.33	U	1.0	0.33	ug/L			02/04/16 11:41	1
2-Butanone (MEK)	2.2	U	5.0	2.2	ug/L			02/04/16 11:41	1
2-Hexanone	0.72	U	5.0	0.72	ug/L			02/04/16 11:41	1
4-Methyl-2-pentanone (MIBK)	0.63	U	5.0	0.63	ug/L			02/04/16 11:41	1
Acetone	1.1	U	5.0	1.1	ug/L			02/04/16 11:41	1
Benzene	0.090	U	1.0	0.090	ug/L			02/04/16 11:41	1
Bromoform	0.18	U	1.0	0.18	ug/L			02/04/16 11:41	1
Bromomethane	0.18	U	1.0	0.18	ug/L			02/04/16 11:41	1
Carbon disulfide	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
Carbon tetrachloride	0.33	U	1.0	0.33	ug/L			02/04/16 11:41	1
Chlorobenzene	0.24	U	1.0	0.24	ug/L			02/04/16 11:41	1
Chlorobromomethane	0.30	U	1.0	0.30	ug/L			02/04/16 11:41	1
Chlorodibromomethane	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
Chloroethane	0.37	U	1.0	0.37	ug/L			02/04/16 11:41	1
Chloroform	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
Chloromethane	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
cis-1,2-Dichloroethene	0.26	U	1.0	0.26	ug/L			02/04/16 11:41	1
cis-1,3-Dichloropropene	0.16	U	1.0	0.16	ug/L			02/04/16 11:41	1
Cyclohexane	0.26	U	1.0	0.26	ug/L			02/04/16 11:41	1
Dichlorobromomethane	0.15	U	1.0	0.15	ug/L			02/04/16 11:41	1
Dichlorodifluoromethane	0.14	U	1.0	0.14	ug/L			02/04/16 11:41	1
Ethylbenzene	0.30	U	1.0	0.30	ug/L			02/04/16 11:41	1
Isopropylbenzene	0.32	U	1.0	0.32	ug/L			02/04/16 11:41	1
Methyl acetate	0.58	U	5.0	0.58	ug/L			02/04/16 11:41	1
Methyl tert-butyl ether	0.13	U	1.0	0.13	ug/L			02/04/16 11:41	1
Methylcyclohexane	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
Methylene Chloride	0.21	U	1.0	0.21	ug/L			02/04/16 11:41	1
Styrene	0.17	U	1.0	0.17	ug/L			02/04/16 11:41	1
Tetrachloroethene	0.12	U	1.0	0.12	ug/L			02/04/16 11:41	1
Toluene	0.25	U	1.0	0.25	ug/L			02/04/16 11:41	1
trans-1,2-Dichloroethene	0.18	U	1.0	0.18	ug/L			02/04/16 11:41	1
trans-1,3-Dichloropropene	0.19	U	1.0	0.19	ug/L			02/04/16 11:41	1
Trichloroethene	0.22	U	1.0	0.22	ug/L			02/04/16 11:41	1
Trichlorofluoromethane	0.15	U	1.0	0.15	ug/L			02/04/16 11:41	1
Vinyl chloride	0.060	U	1.0	0.060	ug/L			02/04/16 11:41	1
Xylenes, Total	0.28	U	2.0	0.28	ug/L			02/04/16 11:41	1

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

Tentatively Identified Compound	MB MB		Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
	Est. Result	Qualifier							
Tentatively Identified Compound	None		ug/L					02/04/16 11:41	1
Surrogate	MB MB		Limits				Prepared	Analyzed	Dil Fac
1,2-Dichloroethane-d4 (Surr)	87		70 - 130					02/04/16 11:41	1
4-Bromofluorobenzene	105		70 - 130					02/04/16 11:41	1
Dibromofluoromethane (Surr)	95		70 - 130					02/04/16 11:41	1
Toluene-d8 (Surr)	97		70 - 130					02/04/16 11:41	1

Lab Sample ID: LCS 460-349009/3

Matrix: Water

Analysis Batch: 349009

Client Sample ID: Lab Control Sample  
 Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.	Limits	9
							Limits		
1,1,1-Trichloroethane	20.0	20.4		ug/L		102	70 - 130		10
1,1,2,2-Tetrachloroethane	20.0	23.1		ug/L		115	70 - 130		11
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	16.2		ug/L		81	70 - 130		12
1,1,2-Trichloroethane	20.0	22.5		ug/L		113	70 - 130		13
1,1-Dichloroethane	20.0	23.1		ug/L		116	70 - 130		14
1,1-Dichloroethene	20.0	20.1		ug/L		101	70 - 130		15
1,2,3-Trichlorobenzene	20.0	19.0		ug/L		95	70 - 130		
1,2,4-Trichlorobenzene	20.0	19.4		ug/L		97	70 - 130		
1,2-Dichlorobenzene	20.0	23.3		ug/L		117	70 - 130		
1,2-Dichloroethane	20.0	21.8		ug/L		109	70 - 130		
1,2-Dichloropropane	20.0	24.2		ug/L		121	70 - 130		
1,3-Dichlorobenzene	20.0	21.4		ug/L		107	70 - 130		
1,4-Dichlorobenzene	20.0	22.9		ug/L		114	70 - 130		
2-Butanone (MEK)	100	113		ug/L		113	40 - 160		
2-Hexanone	100	118		ug/L		118	40 - 160		
4-Methyl-2-pentanone (MIBK)	100	121		ug/L		121	40 - 160		
Acetone	100	70.5		ug/L		71	40 - 160		
Benzene	20.0	22.7		ug/L		113	70 - 130		
Bromoform	20.0	18.8		ug/L		94	70 - 130		
Bromomethane	20.0	21.1		ug/L		105	40 - 160		
Carbon disulfide	20.0	19.4		ug/L		97	40 - 160		
Carbon tetrachloride	20.0	19.2		ug/L		96	70 - 130		
Chlorobenzene	20.0	21.8		ug/L		109	70 - 130		
Chlorobromomethane	20.0	23.3		ug/L		117	70 - 130		
Chlorodibromomethane	20.0	21.0		ug/L		105	70 - 130		
Chloroethane	20.0	22.4		ug/L		112	40 - 160		
Chloroform	20.0	22.6		ug/L		113	70 - 130		
Chloromethane	20.0	24.6		ug/L		123	40 - 160		
cis-1,2-Dichloroethene	20.0	24.5		ug/L		123	70 - 130		
cis-1,3-Dichloropropene	20.0	20.8		ug/L		104	70 - 130		
Cyclohexane	20.0	22.0		ug/L		110	70 - 130		
Dichlorobromomethane	20.0	22.7		ug/L		113	70 - 130		
Dichlorodifluoromethane	20.0	17.9		ug/L		90	40 - 160		
Ethylbenzene	20.0	21.4		ug/L		107	70 - 130		
Isopropylbenzene	20.0	21.8		ug/L		109	70 - 130		
Methyl acetate	100	66.1 *		ug/L		66	70 - 130		
Methyl tert-butyl ether	20.0	19.7		ug/L		99	70 - 130		
Methylcyclohexane	20.0	18.9		ug/L		94	70 - 130		
Methylene Chloride	20.0	20.1		ug/L		100	70 - 130		

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

**Lab Sample ID: LCS 460-349009/3**

**Matrix: Water**

**Analysis Batch: 349009**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike	LCS	LCS	Unit	D	%Rec	%Rec.	Limits	
	Added	Result	Qualifier						
Styrene	20.0	21.6		ug/L		108	70 - 130		
Tetrachloroethene	20.0	19.9		ug/L		100	70 - 130		
Toluene	20.0	20.7		ug/L		104	70 - 130		
trans-1,2-Dichloroethene	20.0	20.7		ug/L		103	70 - 130		
trans-1,3-Dichloropropene	20.0	20.5		ug/L		103	70 - 130		
Trichloroethene	20.0	22.8		ug/L		114	70 - 130		
Trichlorofluoromethane	20.0	21.7		ug/L		108	40 - 160		
Vinyl chloride	20.0	22.1		ug/L		111	70 - 130		
Xylenes, Total	40.0	41.5		ug/L		104	70 - 130		

**LCS**   **LCS**

**Surrogate**   **%Recovery**   **Qualifier**   **Limits**

1,2-Dichloroethane-d4 (Surr)	88		70 - 130
4-Bromofluorobenzene	109		70 - 130
Dibromofluoromethane (Surr)	95		70 - 130
Toluene-d8 (Surr)	94		70 - 130

**Lab Sample ID: LCSD 460-349009/4**

**Matrix: Water**

**Analysis Batch: 349009**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	Limit
	Added	Result	Qualifier						
1,1,1-Trichloroethane	20.0	19.0		ug/L		95	70 - 130	7	20
1,1,2,2-Tetrachloroethane	20.0	20.1		ug/L		101	70 - 130	14	20
1,1,2-Trichloro-1,2,2-trifluoroethane	20.0	15.1		ug/L		76	70 - 130	7	20
1,1,2-Trichloroethane	20.0	20.8		ug/L		104	70 - 130	8	20
1,1-Dichloroethane	20.0	21.6		ug/L		108	70 - 130	7	20
1,1-Dichloroethene	20.0	18.3		ug/L		92	70 - 130	9	20
1,2,3-Trichlorobenzene	20.0	17.8		ug/L		89	70 - 130	7	20
1,2,4-Trichlorobenzene	20.0	18.1		ug/L		91	70 - 130	7	20
1,2-Dichlorobenzene	20.0	21.2		ug/L		106	70 - 130	10	20
1,2-Dichloroethane	20.0	20.4		ug/L		102	70 - 130	7	20
1,2-Dichloropropane	20.0	22.9		ug/L		114	70 - 130	6	20
1,3-Dichlorobenzene	20.0	19.6		ug/L		98	70 - 130	9	20
1,4-Dichlorobenzene	20.0	21.3		ug/L		106	70 - 130	7	20
2-Butanone (MEK)	100	108		ug/L		108	40 - 160	5	20
2-Hexanone	100	109		ug/L		109	40 - 160	8	20
4-Methyl-2-pentanone (MIBK)	100	112		ug/L		112	40 - 160	8	20
Acetone	100	66.3		ug/L		66	40 - 160	6	20
Benzene	20.0	20.9		ug/L		104	70 - 130	8	20
Bromoform	20.0	17.6		ug/L		88	70 - 130	7	20
Bromomethane	20.0	21.3		ug/L		106	40 - 160	1	20
Carbon disulfide	20.0	17.6		ug/L		88	40 - 160	10	20
Carbon tetrachloride	20.0	17.0		ug/L		85	70 - 130	12	20
Chlorobenzene	20.0	20.6		ug/L		103	70 - 130	6	20
Chlorobromomethane	20.0	21.7		ug/L		109	70 - 130	7	20
Chlorodibromomethane	20.0	19.3		ug/L		97	70 - 130	8	20
Chloroethane	20.0	21.9		ug/L		110	40 - 160	2	20

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 8260C - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 460-349009/4

Client Sample ID: Lab Control Sample Dup  
 Prep Type: Total/NA

Matrix: Water

Analysis Batch: 349009

Analyte	Spike	LCSD	LCSD	Unit	D	%Rec.	Limits	RPD	RPD Limit
	Added	Result	Qualifier			%Rec			
Chloroform	20.0	21.3		ug/L		106	70 - 130	6	20
Chloromethane	20.0	24.4		ug/L		122	40 - 160	1	20
cis-1,2-Dichloroethene	20.0	21.8		ug/L		109	70 - 130	12	20
cis-1,3-Dichloropropene	20.0	19.2		ug/L		96	70 - 130	8	20
Cyclohexane	20.0	19.6		ug/L		98	70 - 130	12	20
Dichlorobromomethane	20.0	21.2		ug/L		106	70 - 130	7	20
Dichlorodifluoromethane	20.0	18.6		ug/L		93	40 - 160	4	20
Ethylbenzene	20.0	20.0		ug/L		100	70 - 130	7	20
Isopropylbenzene	20.0	20.0		ug/L		100	70 - 130	9	20
Methyl acetate	100	60.2	*	ug/L		60	70 - 130	9	20
Methyl tert-butyl ether	20.0	18.2		ug/L		91	70 - 130	8	20
Methylcyclohexane	20.0	17.4		ug/L		87	70 - 130	8	20
Methylene Chloride	20.0	18.8		ug/L		94	70 - 130	6	20
Styrene	20.0	19.9		ug/L		99	70 - 130	8	20
Tetrachloroethene	20.0	18.1		ug/L		90	70 - 130	10	20
Toluene	20.0	19.4		ug/L		97	70 - 130	7	20
trans-1,2-Dichloroethene	20.0	18.8		ug/L		94	70 - 130	9	20
trans-1,3-Dichloropropene	20.0	19.2		ug/L		96	70 - 130	7	20
Trichloroethene	20.0	21.1		ug/L		105	70 - 130	8	20
Trichlorofluoromethane	20.0	21.6		ug/L		108	40 - 160	0	20
Vinyl chloride	20.0	21.5		ug/L		107	70 - 130	3	20
Xylenes, Total	40.0	39.1		ug/L		98	70 - 130	6	20

Surrogate	LCSD	LCSD	Limits
	%Recovery	Qualifier	
1,2-Dichloroethane-d4 (Surr)	89		70 - 130
4-Bromofluorobenzene	108		70 - 130
Dibromofluoromethane (Surr)	94		70 - 130
Toluene-d8 (Surr)	95		70 - 130

## Method: 8260C SIM - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 460-348855/6

Client Sample ID: Method Blank  
 Prep Type: Total/NA

Matrix: Water

Analysis Batch: 348855

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
1,2-Dibromo-3-Chloropropane	0.0070	U	0.020	0.0070	ug/L			02/03/16 12:26	1
Ethylene Dibromide	0.0060	U	0.020	0.0060	ug/L			02/03/16 12:26	1
Surrogate	MB	MB	Limits	Prepared	Analyzed	Dil Fac	Prepared	Analyzed	Dil Fac
	%Recovery	Qualifier							
1,2-Dichloroethane-d4 (Surr)	103		70 - 130					02/03/16 12:26	1
4-Bromofluorobenzene	92		70 - 130					02/03/16 12:26	1

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 8260C SIM - Volatile Organic Compounds (GC/MS) (Continued)

**Lab Sample ID: LCS 460-348855/3**

**Matrix: Water**

**Analysis Batch: 348855**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
				ug/L			Limits
1,2-Dibromo-3-Chloropropane	0.500	0.530			106	40 - 160	
Ethylene Dibromide	0.500	0.486		ug/L	97	70 - 130	

**Surrogate**  
LCS %Recovery Qualifier Limits

1,2-Dichloroethane-d4 (Surr)	103	70 - 130
4-Bromofluorobenzene	96	70 - 130

**Lab Sample ID: LCSD 460-348855/4**

**Matrix: Water**

**Analysis Batch: 348855**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec.	RPD
				ug/L			Limits	RPD
1,2-Dibromo-3-Chloropropane	0.500	0.549			110	40 - 160		3
Ethylene Dibromide	0.500	0.573		ug/L	115	70 - 130		16

**Surrogate**  
LCSD %Recovery Qualifier Limits

1,2-Dichloroethane-d4 (Surr)	99	70 - 130
4-Bromofluorobenzene	92	70 - 130

## Method: RSK-175 - Dissolved Gases (GC)

**Lab Sample ID: MB 490-315678/4**

**Matrix: Water**

**Analysis Batch: 315678**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
				0.0025	mg/L				
Methane	0.0025	U	0.0050	0.0025	mg/L			01/29/16 12:16	1

**Surrogate**  
MB %Recovery Qualifier Limits

Acetylene (Surr)	116	62 - 124
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**Prepared**  
**Analyzed**  
**Dil Fac**

01/29/16 12:16  
1

**Lab Sample ID: LCS 490-315678/5**

**Matrix: Water**

**Analysis Batch: 315678**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec.
				mg/L			Limits
Ethane	0.513	0.469		mg/L	92	80 - 120	
Ethylene	0.479	0.501		mg/L	105	80 - 120	
Methane	0.279	0.259		mg/L	93	80 - 120	

**Surrogate**  
LCS %Recovery Qualifier Limits

Acetylene (Surr)	107	62 - 124
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TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: RSK-175 - Dissolved Gases (GC) (Continued)

**Lab Sample ID: LCSD 490-315678/6**

**Matrix: Water**

**Analysis Batch: 315678**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Ethane	0.513	0.546		mg/L		106	80 - 120	15	30
Ethylene	0.479	0.558		mg/L		116	80 - 120	11	29
Methane	0.279	0.298		mg/L		107	80 - 120	14	33
<b>Surrogate</b>	<b>LCSD %Recovery</b>	<b>LCSD Qualifier</b>	<b>Limits</b>						
Acetylene (Sur)	114		62 - 124						

**Lab Sample ID: 490-96474-B-1 MS**

**Matrix: Water**

**Analysis Batch: 315678**

**Client Sample ID: Matrix Spike**  
**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethane	0.0025	U	0.513	0.508		mg/L		99	71 - 120
Ethylene	0.0025	U	0.479	0.454		mg/L		95	71 - 120
Methane	1.7	E	0.279	1.80	E 4	mg/L		35	46 - 142
<b>Surrogate</b>	<b>MS %Recovery</b>	<b>MS Qualifier</b>	<b>Limits</b>						
Acetylene (Sur)	114		62 - 124						

## Method: 9056A - Anions, Ion Chromatography

**Lab Sample ID: MB 460-348764/5**

**Matrix: Water**

**Analysis Batch: 348764**

**Client Sample ID: Method Blank**  
**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.030	U	0.12	0.030	mg/L			02/03/16 00:08	1
Sulfate	0.11	U	0.60	0.11	mg/L			02/03/16 00:08	1

**Lab Sample ID: LCS 460-348764/6**

**Matrix: Water**

**Analysis Batch: 348764**

**Client Sample ID: Lab Control Sample**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromide	5.00	4.859		mg/L		97	90 - 110
Chloride	1.50	1.394		mg/L		93	90 - 110
Fluoride	1.00	0.975		mg/L		97	90 - 110
Sulfate	7.50	7.159		mg/L		95	90 - 110

**Lab Sample ID: LCSD 460-348764/7**

**Matrix: Water**

**Analysis Batch: 348764**

**Client Sample ID: Lab Control Sample Dup**  
**Prep Type: Total/NA**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Bromide	5.00	4.819		mg/L		96	90 - 110	1	15
Chloride	1.50	1.391		mg/L		93	90 - 110	0	15
Fluoride	1.00	0.960		mg/L		96	90 - 110	1	15
Sulfate	7.50	7.145		mg/L		95	90 - 110	0	15

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Lab Sample ID: 460-108178-1 MS**

**Matrix: Water**

**Analysis Batch: 348764**

**Client Sample ID: OB-32-012816**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Bromide	0.081	U	5.00	5.229		mg/L		105	90 - 110		
Chloride	2.23		1.50	3.755		mg/L		101	90 - 110		
Fluoride	0.23		1.00	1.204		mg/L		98	90 - 110		
Sulfate	0.68		7.50	7.856		mg/L		96	90 - 110		

**Lab Sample ID: 460-108178-1 MSD**

**Matrix: Water**

**Analysis Batch: 348764**

**Client Sample ID: OB-32-012816**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Bromide	0.081	U	5.00	5.421		mg/L		108	90 - 110	4	15
Chloride	2.23		1.50	3.730		mg/L		100	90 - 110	1	15
Fluoride	0.23		1.00	1.240		mg/L		101	90 - 110	3	15
Sulfate	0.68		7.50	8.143		mg/L		100	90 - 110	4	15

**Lab Sample ID: 460-108178-1 DU**

**Matrix: Water**

**Analysis Batch: 348764**

**Client Sample ID: OB-32-012816**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Chloride	2.23		2.193		mg/L		2	15
Sulfate	0.68		0.724		mg/L		7	15

## Method: 6020A - Metals (ICP/MS)

**Lab Sample ID: MB 460-348196/1-A ^2**

**Matrix: Water**

**Analysis Batch: 349037**

**Client Sample ID: Method Blank**

**Prep Type: Total/NA**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Manganese	3.0	U		8.0	ug/L		01/29/16 07:45	02/03/16 16:42	2

**Lab Sample ID: LCS 460-348196/2-A ^2**

**Matrix: Water**

**Analysis Batch: 349037**

**Client Sample ID: Lab Control Sample**

**Prep Type: Total/NA**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Manganese	250	225.4		ug/L		90	80 - 120

**Lab Sample ID: 460-108176-I-3-C MS ^2**

**Matrix: Water**

**Analysis Batch: 349037**

**Client Sample ID: Matrix Spike**

**Prep Type: Total/NA**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Manganese	54.9		250	264.6		ug/L		84	75 - 125

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 6020A - Metals (ICP/MS) (Continued)

**Lab Sample ID:** 460-108176-I-3-B DU ^2

**Matrix:** Water

**Analysis Batch:** 349037

**Client Sample ID:** Duplicate

**Prep Type:** Total/NA

**Prep Batch:** 348196

**RPD**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	Limit
Manganese	54.9		55.24		ug/L		0.7	20

## Method: 351.2 - Nitrogen, Total Kjeldahl

**Lab Sample ID:** MB 490-317402/1-A

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

**Prep Batch:** 317402

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Kjeldahl Nitrogen as N	0.150	J	0.25	0.14	mg/L		02/10/16 15:15	02/12/16 15:09	1

**Lab Sample ID:** LCS 490-317402/2-A

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

**Prep Batch:** 317402

**%Rec.**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Kjeldahl Nitrogen as N	2.50	2.69		mg/L		108	90 - 110

**Lab Sample ID:** LCSD 490-317402/3-A

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Lab Control Sample Dup

**Prep Type:** Total/NA

**Prep Batch:** 317402

**RPD**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Kjeldahl Nitrogen as N	2.50	2.50		mg/L		100	90 - 110	7	20

**Lab Sample ID:** 490-96825-A-1-B MS

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Matrix Spike

**Prep Type:** Total/NA

**Prep Batch:** 317402

**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Kjeldahl Nitrogen as N	0.23	J B	2.50	2.86		mg/L		105	90 - 110

**Lab Sample ID:** 490-96825-A-1-C MSD

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Matrix Spike Duplicate

**Prep Type:** Total/NA

**Prep Batch:** 317402

**RPD**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Kjeldahl Nitrogen as N	0.23	J B	2.50	2.75		mg/L		101	90 - 110	4	20

**Lab Sample ID:** 490-97124-A-1-E MS

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Matrix Spike

**Prep Type:** Total/NA

**Prep Batch:** 317402

**%Rec.**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	Limits
Kjeldahl Nitrogen as N	0.89	B F1	2.50	3.38		mg/L		100	90 - 110

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: 351.2 - Nitrogen, Total Kjeldahl (Continued)

**Lab Sample ID:** 490-97124-A-1-F MSD

**Matrix:** Water

**Analysis Batch:** 317599

**Client Sample ID:** Matrix Spike Duplicate

**Prep Type:** Total/NA

**Prep Batch:** 317402

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	RPD
	Result	Qualifier	Added	Result	Qualifier				
Kjeldahl Nitrogen as N	0.89	B F1	2.50	3.08	F1	mg/L		88	90 - 110
								9	20

## Method: 9060A - Organic Carbon, Total (TOC)

**Lab Sample ID:** MB 460-351751/3

**Matrix:** Water

**Analysis Batch:** 351751

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Total Organic Carbon	0.14	U	1.0	0.14	mg/L			02/04/16 10:02	1

**Lab Sample ID:** LCSSRM 460-351751/4

**Matrix:** Water

**Analysis Batch:** 351751

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

Analyte	Spike	LCSSRM	LCSSRM	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Total Organic Carbon	77.8	76.85		mg/L		98.8	87.7 - 112.0

**Lab Sample ID:** 460-108178-1 MS

**Matrix:** Water

**Analysis Batch:** 351751

**Client Sample ID:** OB-32-012816

**Prep Type:** Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Total Organic Carbon	3.2		50.0	52.95		mg/L		100	90 - 110

**Lab Sample ID:** 460-108178-1 MSD

**Matrix:** Water

**Analysis Batch:** 351751

**Client Sample ID:** OB-32-012816

**Prep Type:** Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Total Organic Carbon	3.2		50.0	52.96		mg/L		100	90 - 110	0	10

## Method: SM 2320B - Alkalinity

**Lab Sample ID:** MB 460-349104/2

**Matrix:** Water

**Analysis Batch:** 349104

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Alkalinity	5.0	U	5.0	5.0	mg/L			02/03/16 12:06	1

**Lab Sample ID:** LCSSRM 460-349104/3

**Matrix:** Water

**Analysis Batch:** 349104

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

Analyte	Spike	LCSSRM	LCSSRM	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Alkalinity	38.2	35.84		mg/L		93.8	90.8 - 108.3

TestAmerica Edison

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: SM 2320B - Alkalinity (Continued)

**Lab Sample ID:** 460-108178-1 DU

**Matrix:** Water

**Analysis Batch:** 349104

**Client Sample ID:** OB-32-012816

**Prep Type:** Total/NA

Analyte	Sample	Sample	DU	DU	Unit	D	RPD	RPD Limit
	Result	Qualifier	Result	Qualifier				
Alkalinity	195		195.9		mg/L		0.2	17

## Method: SM 4500 NO3 F - Nitrogen, Nitrate

**Lab Sample ID:** MB 460-348252/9

**Matrix:** Water

**Analysis Batch:** 348252

**Client Sample ID:** Method Blank

**Prep Type:** Total/NA

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Nitrate as N	0.026	U	0.10	0.026	mg/L			01/29/16 10:47	1
Nitrite as N	0.0081	U	0.10	0.0081	mg/L			01/29/16 10:47	1

**Lab Sample ID:** LCSSRM 460-348252/10

**Matrix:** Water

**Analysis Batch:** 348252

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

Analyte	Spike	LCSSRM	LCSSRM	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Nitrite as N	0.780	0.797		mg/L	102	88 - 111	

**Lab Sample ID:** LCSSRM 460-348252/11

**Matrix:** Water

**Analysis Batch:** 348252

**Client Sample ID:** Lab Control Sample

**Prep Type:** Total/NA

Analyte	Spike	LCSSRM	LCSSRM	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Nitrate as N	1.40	1.46		mg/L	104.0	85.9 - 112.	

**Lab Sample ID:** 460-108178-1 MS

**Matrix:** Water

**Analysis Batch:** 348252

**Client Sample ID:** OB-32-012816

**Prep Type:** Total/NA

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Nitrate as N	0.099	J F1	0.500	0.125	F1	mg/L	5	53 - 135	
Nitrite as N	0.075	J F1	0.500	0.360	F1	mg/L	57	81 - 111	

**Lab Sample ID:** 460-108178-1 MSD

**Matrix:** Water

**Analysis Batch:** 348252

**Client Sample ID:** OB-32-012816

**Prep Type:** Total/NA

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	Limits	RPD	RPD Limit
	Result	Qualifier	Added	Result	Qualifier						
Nitrate as N	0.099	J F1	0.500	0.130	F1	mg/L	6	53 - 135		4	12
Nitrite as N	0.075	J F1	0.500	0.333	F1	mg/L	52	81 - 111		8	10

# QC Sample Results

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Method: SM 4500 S2 F - Sulfide, Total

**Lab Sample ID: MB 460-348711/1**

**Matrix: Water**

**Analysis Batch: 348711**

Analyte	MB	MB	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
	Result	Qualifier							
Sulfide	0.82	U	1.0	0.82	mg/L			02/02/16 13:59	1

**Lab Sample ID: LCSSRM 460-348711/2**

**Matrix: Water**

**Analysis Batch: 348711**

Analyte	Spike	LCSSRM	LCSSRM	Unit	D	%Rec.	Limits
	Added	Result	Qualifier				
Sulfide	6.76	3.59		mg/L	53.1	50.4 - 133.	0

**Lab Sample ID: 460-108178-1 MS**

**Matrix: Water**

**Analysis Batch: 348711**

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec.	Limits
	Result	Qualifier	Added	Result	Qualifier				
Sulfide	0.82	U	2.84	2.46		mg/L	87	76 - 127	

**Lab Sample ID: 460-108178-1 MSD**

**Matrix: Water**

**Analysis Batch: 348711**

Analyte	Sample	Sample	Spike	MSD	MSD	Unit	D	%Rec.	Limits	RPD	Limit
	Result	Qualifier	Added	Result	Qualifier						
Sulfide	0.82	U	2.84	2.46		mg/L	87	76 - 127	0	0	10

# QC Association Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## GC/MS VOA

### Analysis Batch: 348855

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	8260C SIM	
460-108178-2	OB-31-012816	Total/NA	Water	8260C SIM	
460-108178-3	TB-012816	Total/NA	Water	8260C SIM	
LCS 460-348855/3	Lab Control Sample	Total/NA	Water	8260C SIM	
LCSD 460-348855/4	Lab Control Sample Dup	Total/NA	Water	8260C SIM	
MB 460-348855/6	Method Blank	Total/NA	Water	8260C SIM	

### Analysis Batch: 349009

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	8260C	
460-108178-2	OB-31-012816	Total/NA	Water	8260C	
460-108178-3	TB-012816	Total/NA	Water	8260C	
LCS 460-349009/3	Lab Control Sample	Total/NA	Water	8260C	
LCSD 460-349009/4	Lab Control Sample Dup	Total/NA	Water	8260C	
MB 460-349009/7	Method Blank	Total/NA	Water	8260C	

## GC VOA

### Analysis Batch: 315678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	RSK-175	
460-108178-1	OB-32-012816	Total/NA	Water	RSK-175	
460-108178-2	OB-31-012816	Total/NA	Water	RSK-175	
460-108178-2	OB-31-012816	Total/NA	Water	RSK-175	
490-96474-B-1 MS	Matrix Spike	Total/NA	Water	RSK-175	
LCS 490-315678/5	Lab Control Sample	Total/NA	Water	RSK-175	
LCSD 490-315678/6	Lab Control Sample Dup	Total/NA	Water	RSK-175	
MB 490-315678/4	Method Blank	Total/NA	Water	RSK-175	

## HPLC/IC

### Analysis Batch: 348764

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	9056A	
460-108178-1 DU	OB-32-012816	Total/NA	Water	9056A	
460-108178-1 MS	OB-32-012816	Total/NA	Water	9056A	
460-108178-1 MSD	OB-32-012816	Total/NA	Water	9056A	
460-108178-2	OB-31-012816	Total/NA	Water	9056A	
LCS 460-348764/6	Lab Control Sample	Total/NA	Water	9056A	
LCSD 460-348764/7	Lab Control Sample Dup	Total/NA	Water	9056A	
MB 460-348764/5	Method Blank	Total/NA	Water	9056A	

## Metals

### Prep Batch: 348196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108176-I-3-B DU ^2	Duplicate	Total/NA	Water	3010A	
460-108176-I-3-C MS ^2	Matrix Spike	Total/NA	Water	3010A	
460-108178-1	OB-32-012816	Total/NA	Water	3010A	
460-108178-2	OB-31-012816	Total/NA	Water	3010A	

TestAmerica Edison

# QC Association Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## Metals (Continued)

### Prep Batch: 348196 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 460-348196/2-A ^2	Lab Control Sample	Total/NA	Water	3010A	
MB 460-348196/1-A ^2	Method Blank	Total/NA	Water	3010A	

### Analysis Batch: 349037

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108176-I-3-B DU ^2	Duplicate	Total/NA	Water	6020A	348196
460-108176-I-3-C MS ^2	Matrix Spike	Total/NA	Water	6020A	348196
460-108178-1	OB-32-012816	Total/NA	Water	6020A	348196
460-108178-2	OB-31-012816	Total/NA	Water	6020A	348196
LCS 460-348196/2-A ^2	Lab Control Sample	Total/NA	Water	6020A	348196
MB 460-348196/1-A ^2	Method Blank	Total/NA	Water	6020A	348196

## General Chemistry

### Prep Batch: 317402

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	351.2	
460-108178-2	OB-31-012816	Total/NA	Water	351.2	
490-96825-A-1-B MS	Matrix Spike	Total/NA	Water	351.2	
490-96825-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	351.2	
490-97124-A-1-E MS	Matrix Spike	Total/NA	Water	351.2	
490-97124-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	351.2	
LCS 490-317402/2-A	Lab Control Sample	Total/NA	Water	351.2	
LCSD 490-317402/3-A	Lab Control Sample Dup	Total/NA	Water	351.2	
MB 490-317402/1-A	Method Blank	Total/NA	Water	351.2	

### Analysis Batch: 317599

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	351.2	317402
460-108178-2	OB-31-012816	Total/NA	Water	351.2	317402
490-96825-A-1-B MS	Matrix Spike	Total/NA	Water	351.2	317402
490-96825-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Water	351.2	317402
490-97124-A-1-E MS	Matrix Spike	Total/NA	Water	351.2	317402
490-97124-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Water	351.2	317402
LCS 490-317402/2-A	Lab Control Sample	Total/NA	Water	351.2	317402
LCSD 490-317402/3-A	Lab Control Sample Dup	Total/NA	Water	351.2	317402
MB 490-317402/1-A	Method Blank	Total/NA	Water	351.2	317402

### Analysis Batch: 348252

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	SM 4500 NO3 F	
460-108178-1 MS	OB-32-012816	Total/NA	Water	SM 4500 NO3 F	
460-108178-1 MSD	OB-32-012816	Total/NA	Water	SM 4500 NO3 F	
460-108178-2	OB-31-012816	Total/NA	Water	SM 4500 NO3 F	
LCSSRM 460-348252/10	Lab Control Sample	Total/NA	Water	SM 4500 NO3 F	
LCSSRM 460-348252/11	Lab Control Sample	Total/NA	Water	SM 4500 NO3 F	
MB 460-348252/9	Method Blank	Total/NA	Water	SM 4500 NO3 F	

# QC Association Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

## General Chemistry (Continued)

### Analysis Batch: 348711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	SM 4500 S2 F	1
460-108178-1 MS	OB-32-012816	Total/NA	Water	SM 4500 S2 F	2
460-108178-1 MSD	OB-32-012816	Total/NA	Water	SM 4500 S2 F	3
460-108178-2	OB-31-012816	Total/NA	Water	SM 4500 S2 F	4
LCSSRM 460-348711/2	Lab Control Sample	Total/NA	Water	SM 4500 S2 F	5
MB 460-348711/1	Method Blank	Total/NA	Water	SM 4500 S2 F	6

### Analysis Batch: 349104

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	SM 2320B	9
460-108178-1 DU	OB-32-012816	Total/NA	Water	SM 2320B	10
460-108178-2	OB-31-012816	Total/NA	Water	SM 2320B	11
LCSSRM 460-349104/3	Lab Control Sample	Total/NA	Water	SM 2320B	12
MB 460-349104/2	Method Blank	Total/NA	Water	SM 2320B	13

### Analysis Batch: 351751

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
460-108178-1	OB-32-012816	Total/NA	Water	9060A	13
460-108178-1 MS	OB-32-012816	Total/NA	Water	9060A	14
460-108178-1 MSD	OB-32-012816	Total/NA	Water	9060A	15
460-108178-2	OB-31-012816	Total/NA	Water	9060A	
LCSSRM 460-351751/4	Lab Control Sample	Total/NA	Water	9060A	
MB 460-351751/3	Method Blank	Total/NA	Water	9060A	

## Lab Chronicle

Client: Cornerstone Environmental Group, LLC  
 Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

**Client Sample ID: OB-32-012816**

Date Collected: 01/28/16 10:01

Date Received: 01/28/16 15:00

**Lab Sample ID: 460-108178-1**

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	349009	02/04/16 16:31	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	348855	02/03/16 16:11	SZD	TAL EDI
Total/NA	Analysis	RSK-175		1	315678	01/29/16 16:21	SH	TAL NSH
Total/NA	Analysis	RSK-175		80	315678	01/29/16 16:26	SH	TAL NSH
Total/NA	Analysis	9056A		1	348764	02/03/16 03:01	CBB	TAL EDI
Total/NA	Prep	3010A			348196	01/29/16 07:45	QZY	TAL EDI
Total/NA	Analysis	6020A		2	349037	02/03/16 17:49	VAD	TAL EDI
Total/NA	Prep	351.2			317402	02/10/16 15:15	LDT	TAL NSH
Total/NA	Analysis	351.2		1	317599	02/12/16 15:09	PEK	TAL NSH
Total/NA	Analysis	9060A		1	351751	02/04/16 10:02	HTV	TAL EDI
Total/NA	Analysis	SM 2320B		1	349104	02/03/16 12:21	MCH	TAL EDI
Total/NA	Analysis	SM 4500 NO3 F		1	348252	01/29/16 10:54	RAK	TAL EDI
Total/NA	Analysis	SM 4500 S2 F		1	348711	02/02/16 13:59	MCH	TAL EDI

**Client Sample ID: OB-31-012816**

Date Collected: 01/28/16 12:31

Date Received: 01/28/16 15:00

**Lab Sample ID: 460-108178-2**

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	349009	02/04/16 16:55	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	348855	02/03/16 16:35	SZD	TAL EDI
Total/NA	Analysis	RSK-175		1	315678	01/29/16 16:31	SH	TAL NSH
Total/NA	Analysis	RSK-175		80	315678	01/29/16 16:35	SH	TAL NSH
Total/NA	Analysis	9056A		1	348764	02/03/16 03:22	CBB	TAL EDI
Total/NA	Prep	3010A			348196	01/29/16 08:29	QZY	TAL EDI
Total/NA	Analysis	6020A		2	349037	02/03/16 17:55	VAD	TAL EDI
Total/NA	Prep	351.2			317402	02/10/16 15:15	LDT	TAL NSH
Total/NA	Analysis	351.2		1	317599	02/12/16 15:09	PEK	TAL NSH
Total/NA	Analysis	9060A		1	351751	02/04/16 10:02	HTV	TAL EDI
Total/NA	Analysis	SM 2320B		1	349104	02/03/16 12:36	MCH	TAL EDI
Total/NA	Analysis	SM 4500 NO3 F		1	348252	01/29/16 10:56	RAK	TAL EDI
Total/NA	Analysis	SM 4500 S2 F		1	348711	02/02/16 13:59	MCH	TAL EDI

**Client Sample ID: TB-012816**

Date Collected: 01/28/16 12:31

Date Received: 01/28/16 15:00

**Lab Sample ID: 460-108178-3**

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260C		1	349009	02/04/16 12:06	SZD	TAL EDI
Total/NA	Analysis	8260C SIM		1	348855	02/03/16 14:56	SZD	TAL EDI

TestAmerica Edison

## Lab Chronicle

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

### Laboratory References:

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900  
TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

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## Certification Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

### Laboratory: TestAmerica Edison

Unless otherwise noted, all analytes for this laboratory were covered under each certification below.

Authority	Program	EPA Region	Certification ID	Expiration Date
New Jersey	NELAP	2	12028	06-30-16

The following analytes are included in this report, but certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260C		Water	1,2,4-Trichlorobenzene
8260C SIM		Water	1,2-Dibromo-3-Chloropropane
8260C SIM		Water	Ethylene Dibromide
9056A		Water	Chloride
9056A		Water	Sulfate
SM 4500 S2 F		Water	Sulfide

### Laboratory: TestAmerica Nashville

The certifications listed below are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
New Jersey	NELAP	2	TN965	06-30-16

# Method Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

Method	Method Description	Protocol	Laboratory
8260C	Volatile Organic Compounds by GC/MS	SW846	TAL EDI
8260C SIM	Volatile Organic Compounds (GC/MS)	SW846	TAL EDI
RSK-175	Dissolved Gases (GC)	RSK	TAL NSH
9056A	Anions, Ion Chromatography	SW846	TAL EDI
6020A	Metals (ICP/MS)	SW846	TAL EDI
351.2	Nitrogen, Total Kjeldahl	MCAWW	TAL NSH
9060A	Organic Carbon, Total (TOC)	SW846	TAL EDI
SM 2320B	Alkalinity	SM	TAL EDI
SM 4500 NO3 F	Nitrogen, Nitrate	SM	TAL EDI
SM 4500 S2 F	Sulfide, Total	SM	TAL EDI

## Protocol References:

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

RSK = Sample Prep And Calculations For Dissolved Gas Analysis In Water Samples Using A GC Headspace Equilibration Technique, RSKSOP-175, Rev. 0, 8/11/94, USEPA Research Lab

SM = "Standard Methods For The Examination Of Water And Wastewater",

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

## Laboratory References:

TAL EDI = TestAmerica Edison, 777 New Durham Road, Edison, NJ 08817, TEL (732)549-3900

TAL NSH = TestAmerica Nashville, 2960 Foster Creighton Drive, Nashville, TN 37204, TEL (615)726-0177

## Sample Summary

Client: Cornerstone Environmental Group, LLC  
Project/Site: FORD Ringwood Mines E203361

TestAmerica Job ID: 460-108178-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
460-108178-1	OB-32-012816	Water	01/28/16 10:01	01/28/16 15:00
460-108178-2	OB-31-012816	Water	01/28/16 12:31	01/28/16 15:00
460-108178-3	TB-012816	Water	01/28/16 12:31	01/28/16 15:00

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TestAmerica Edison



TestAmerica Edison

777 New Durham Road  
Edison NJ 08817

## Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTS & S

<b>Client Information</b>		Sampler: <b>J.S. Roepel</b>		Carrier Tracking No(s):																									
Client Contact: Tim Roepel		Phone:		Lab PM: <b>Franklin, Jannel O</b>																									
Company: Cornerstone Environmental Group, LLC		E-Mail: <b>janel.franklin@testamericainc.com</b>		COC No: <b>460-67376-41325-5</b>																									
Address: 100 Crystal Run Road Suite 101		Date Date Requested:		Page # of <b>4</b>																									
City: Middletown		TAT Requested (days): <b>Standard</b>		Job #: <b>1D8178</b>																									
State, Zip: NY, 10941		PO #: <b>1A0802-001 (as of 10.6.15)</b>																											
Phone: 845-695-0222(Tel)		WO #:																											
Email: tim.roepel@cornerstoneeg.com		Project #: <b>46016935</b>																											
Project Name: FORD Ringwood Mines E203361		SSOW#:																											
Site:																													
<table border="1"> <thead> <tr> <th colspan="2">Sample Identification</th> <th>Sample Date</th> <th>Sample Time</th> <th>Speciation Code</th> <th>Field Filtered Sample (Yes or No)</th> </tr> </thead> <tbody> <tr> <td colspan="2">03-32-012816</td> <td>1/28/16</td> <td>1001</td> <td>G</td> <td>Water</td> </tr> <tr> <td colspan="2">03-31-012816</td> <td>1/28/16</td> <td>1231</td> <td>C</td> <td>Water</td> </tr> <tr> <td colspan="2">TB-012816</td> <td>1/28/16</td> <td>1231</td> <td>C</td> <td>Water</td> </tr> </tbody> </table>						Sample Identification		Sample Date	Sample Time	Speciation Code	Field Filtered Sample (Yes or No)	03-32-012816		1/28/16	1001	G	Water	03-31-012816		1/28/16	1231	C	Water	TB-012816		1/28/16	1231	C	Water
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1/28/16	1231	C	X X X X X X	2	K - EDTA																								
1/28/16	1231	C	X X X X X X	3	L - EDA																								
<p><b>Possible Hazard Identification</b></p> <p><input type="checkbox"/> Non-Hazard    <input checked="" type="checkbox"/> Flammable    <input type="checkbox"/> Skin Irritant    <input type="checkbox"/> Poison B    <input type="checkbox"/> Unknown    <input type="checkbox"/> Radiological</p> <p>Deliverable Requested: I, II, III, IV, V, Other (specify)</p> <p>Empty Kit Relinquished by: <b>J.S. Roepel</b></p> <p>Date/Time: <b>1/28/16 15:00</b> Company: <b>Performance</b></p> <p>Relinquished by: <b>J.S. Roepel</b></p> <p>Date/Time: <b> </b> Company: <b> </b></p> <p>Custody Seals Intact: <b>Yes</b> Custody Seal No.: <b> </b></p> <p>Δ Yes, Δ No.</p>																													
<p><b>Sample Disposal ( A fee may be assessed if samples are retained longer than 1 month)</b></p> <p><input type="checkbox"/> Return To Client    <input type="checkbox"/> Disposal By Lab    <input type="checkbox"/> Archive For _____ Months</p> <p>Special Instructions/QC Requirements:</p> <p style="text-align: center;"><b>SHORT HOLD</b></p>																													
<table border="1"> <thead> <tr> <th>Received by:</th> <th>Method of Shipment:</th> <th>Date/Time:</th> <th>Company:</th> </tr> </thead> <tbody> <tr> <td><b>J.S. Roepel</b></td> <td><b>Mail</b></td> <td><b>1/28/16 15:00</b></td> <td><b>TA61</b></td> </tr> <tr> <td><b>J.S. Roepel</b></td> <td><b>Mail</b></td> <td><b> </b></td> <td><b> </b></td> </tr> <tr> <td><b>J.S. Roepel</b></td> <td><b>Mail</b></td> <td><b> </b></td> <td><b> </b></td> </tr> </tbody> </table>						Received by:	Method of Shipment:	Date/Time:	Company:	<b>J.S. Roepel</b>	<b>Mail</b>	<b>1/28/16 15:00</b>	<b>TA61</b>	<b>J.S. Roepel</b>	<b>Mail</b>	<b> </b>	<b> </b>	<b>J.S. Roepel</b>	<b>Mail</b>	<b> </b>	<b> </b>								
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<b>J.S. Roepel</b>	<b>Mail</b>	<b> </b>	<b> </b>																										

TestAmerica Edison  
Receipt Temperature and pH Log

Job Number: 108117

Number of Coolers \_\_\_\_\_ R/Gn# \_\_\_\_\_ Cooler Temperatures \_\_\_\_\_

Cooler #1	3.1 °C	47.9 °C	
Cooler #2	0 °C	46 °C	
Cooler #3	0 °C	46 °C	
Cooler #4	0 °C	46 °C	
Cooler #5	0 °C	46 °C	
Cooler #6	0 °C	46 °C	
Cooler #7	0 °C	46 °C	
Cooler #8	0 °C	46 °C	
Cooler #9	0 °C	46 °C	

## Cooler Temperatures

TALS Sample Number	Ammonia (pH<2)	COD (pH<2)	Nitrate Nitrite	Metals * (pH<2)	Hardness (pH<2)	Pest (pH 5-9)	EPH or QAM (pH<2)	Phenols (pH>9)	Sulfide (pH<2)	TKN (pH<2)	TOC (pH<2)	Cyanide (pH>12)	Total Phos (pH<2)	Other Other
--------------------	-------------------	---------------	--------------------	--------------------	--------------------	------------------	-------------------------	-------------------	-------------------	---------------	---------------	--------------------	-------------------------	----------------

A large grid of 10 columns and 10 rows of empty boxes for drawing.

If pH adjustments are required record the information below:

Sample No(s). adjusted:

### Volume of Preservative used (ml)

Expiration Date

**The appropriate Project Manager and Department Manager** should be notified about the samples which were pH adjusted.

EDS-WI-038, Rev 4, 06/09/2014



**COOLER RECEIPT FORM**Cooler Received/Opened On 1/29/2016 @ 1010Time Samples Removed From Cooler 1353 Time Samples Placed In Storage 1444 (2 Hour Window)

1. Tracking # 0850 (last 4 digits, FedEx) Courier: FedEx
- IR Gun ID 96210146 pH Strip Lot HC554612 Chlorine Strip Lot 072815A
2. Temperature of rep. sample or temp blank when opened: 1.6 Degrees Celsius
3. If Item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES NO NA
4. Were custody seals on outside of cooler? YES NO NA

If yes, how many and where: \_\_\_\_\_

5. Were the seals intact, signed, and dated correctly? YES NO NA
6. Were custody papers inside cooler? YES NO NA

I certify that I opened the cooler and answered questions 1-6 (initial) MM

7. Were custody seals on containers: YES NO and Intact YES NO NA
- Were these signed and dated correctly? YES NO NA

8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None

9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None

10. Did all containers arrive in good condition (unbroken)? YES NO NA

11. Were all container labels complete (#, date, signed, pres., etc)? YES NO NA

12. Did all container labels and tags agree with custody papers? YES NO NA

- 13a. Were VOA vials received?

- b. Was there any observable headspace present in any VOA vial? YES NO NA

14. Was there a Trip Blank in this cooler? YES NO NA If multiple coolers, sequence # NA

I certify that I unloaded the cooler and answered questions 7-14 (initial) MM

- 15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES NO NA

- b. Did the bottle labels indicate that the correct preservatives were used YES NO NA

16. Was residual chlorine present? YES NO NA

I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) MM

17. Were custody papers properly filled out (ink, signed, etc)? YES NO NA

18. Did you sign the custody papers in the appropriate place? YES NO NA

19. Were correct containers used for the analysis requested? YES NO NA

20. Was sufficient amount of sample sent in each container? YES NO NA

I certify that I entered this project into LIMS and answered questions 17-20 (initial) MMI certify that I attached a label with the unique LIMS number to each container (initial) MM

21. Were there Non-Conformance issues at login? YES NO Was a NCM generated? YES NO # \_\_\_\_\_

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**TestAmerica Edison**  
777 New Durham Road  
Edison, NJ 08817  
Phone (732) 549-3900 Fax (732) 549-3679

**Chain of Custody Record**



TestAmerica  
111 W. 33rd Street, Suite 1000  
New York, NY 10001  
www.testamerica.com

460-108178 Chain of Custody

COC No: 460-444430-1  
Page: Page 1 of 1

**Client Information (Sub Contract Lab)**

Client Contact:  
Shipping/Receiving

Company:

TestAmerica Laboratories, Inc

Address:

2/960 Foster Creighton Drive,

City: Nashville

State, Zip: TN, 37204

Phone: 615-726-0177(Tel) 615-726-3404(Fax)

Email: jannel.franklin@testamericainc.com

Project Name: FORD Ringwood Mines E203361

Site:

PO#:

WC#:

Project #:

SSOW#:

**Analysis Requested**

Due Date Requested:

2/9/2016

TAT Requested (days):

Field Filtered Sample (Yes or No)

Yes

Sample Method (Yes or No)

No

Sample Type (i.e. water, soil, etc.)

Water

Matrix (i.e. water, soil, etc.)

Water

Sample Time (C=comp, G=grab, S=soil, O=wastefall, B=biological, A=air)

1/28/16

Sample Date

10:01

Sample Time

Eastern

Preservation Code:

X

Date:

1/28/16

Time:

12:31

Eastern

Method:

Water

Received by:

Jannel Franklin

Date/Time:

2/13/16 18:30

Company:

TestAmerica

Received by:

Jannel Franklin

Date/Time:

2/14/16 09:45

Company:

TestAmerica

Received by:

Jannel Franklin

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2/14/16 09:45

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Received by:

Jannel Franklin

Date/Time:

2/14/16 09:45

Company:

**COOLER RECEIPT FORM**Cooler Received/Opened On 2/4/2016 @ 0915Time Samples Removed From Cooler 13:30 Time Samples Placed In Storage 14:20 (2 Hour Window)

1. Tracking # \_\_\_\_\_ (last 4 digits, FedEx) Courier: FedEx  
IR Gun ID 17610176 pH Strip Lot HC554612 Chlorine Strip Lot 072815A
2. Temperature of rep. sample or temp blank when opened: 1.0 Degrees Celsius
3. If item #2 temperature is 0°C or less, was the representative sample or temp blank frozen? YES  NO  NA
4. Were custody seals on outside of cooler? YES  NO  NA  
If yes, how many and where: \_\_\_\_\_
5. Were the seals intact, signed, and dated correctly? YES  NO  NA
6. Were custody papers inside cooler? YES  NO  NA  
I certify that I opened the cooler and answered questions 1-6 (initial) COB
7. Were custody seals on containers: YES  NO  and Intact YES...NO...NA  
Were these signed and dated correctly? YES...NO...NA
8. Packing mat'l used? Bubblewrap Plastic bag Peanuts Vermiculite Foam Insert Paper Other None
9. Cooling process: Ice Ice-pack Ice (direct contact) Dry ice Other None
10. Did all containers arrive in good condition (unbroken)? YES...NO...NA
11. Were all container labels complete (#, date, signed, pres., etc)? YES...NO...NA
12. Did all container labels and tags agree with custody papers? YES...NO...NA  
13a. Were VOA vials received?  
b. Was there any observable headspace present in any VOA vial? YES...NO...NA  
14. Was there a Trip Blank in this cooler? YES...NO  If multiple coolers, sequence # SLW  
I certify that I unloaded the cooler and answered questions 7-14 (initial) SLW
- 15a. On pres'd bottles, did pH test strips suggest preservation reached the correct pH level? YES...NO   
b. Did the bottle labels indicate that the correct preservatives were used YES...NO...NA
16. Was residual chlorine present? YES...NO...NA  
I certify that I checked for chlorine and pH as per SOP and answered questions 15-16 (initial) SLW
17. Were custody papers properly filled out (ink, signed, etc)? YES...NO...NA  
18. Did you sign the custody papers in the appropriate place? YES...NO...NA  
19. Were correct containers used for the analysis requested? YES...NO...NA  
20. Was sufficient amount of sample sent in each container? YES...NO...NA  
I certify that I entered this project into LIMS and answered questions 17-20 (initial) SLW  
I certify that I attached a label with the unique LIMS number to each container (initial) SLW
21. Were there Non-Conformance issues at login? YES...NO  Was a NCM generated? YES...NO...# \_\_\_\_\_

## Login Sample Receipt Checklist

Client: Cornerstone Environmental Group, LLC

Job Number: 460-108178-1

**Login Number:** 108178

**List Source:** TestAmerica Edison

**List Number:** 1

**Creator:** Rivera, Kenneth

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	Not present
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	4.4°C, IR #6
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	No analysis requiring residual chlorine check assigned.

## Login Sample Receipt Checklist

Client: Cornerstone Environmental Group, LLC

Job Number: 460-108178-1

**Login Number:** 108178

**List Source:** TestAmerica Nashville

**List Number:** 2

**List Creation:** 01/29/16 02:40 PM

**Creator:** Ford, Easton

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



02/05/16

Effective January 1, 2016, SGS has acquired all of the assets of Accutest Laboratories and will continue to operate as SGS-Accutest. SGS-Accutest is part of SGS, the world's leading inspection, verification, testing and certification company.

## Technical Report for

**Cornerstone Environmental Group, LLC**

**E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ**

**150648-007**

**Accutest Job Number: JC13356**

**Sampling Date: 01/28/16**

### Report to:

**Cornerstone Environmental  
100 Crystal Run Road Suite 101  
Middletown, NY 10941  
Tim.Rooper@Cornerstoneeg.com; jtomalia@cadenaco.com  
ATTN: Tim Rooper**

**Total number of pages in report: 72**



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

A handwritten signature in black ink that reads "Nancy T. Cole".

**Nancy Cole  
Laboratory Director**

**Client Service contact: Marie Meidhof 732-329-0200**

Certifications: NJ(12129), NY(10983), CA, CT, DE, FL, IL, IN, KS, KY, LA, MA, MD, MI, MT, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TN, TX, VA, WV, DoD ELAP (L-A-B L2248)

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Test results relate only to samples analyzed.

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## Sample Summary

Cornerstone Environmental Group, LLC

Job No: JC13356

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ  
Project No: 150648-007

Sample Number	Collected Date	Time By	Matrix Received	Code Type	Client Sample ID
JC13356-1	01/28/16	10:01 JS	01/28/16	AQ	Ground Water
JC13356-2	01/28/16	12:31 JS	01/28/16	AQ	Ground Water



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** Cornerstone Environmental Group, LLC

**Job No** JC13356

**Site:** E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Report Date** 2/5/2016 2:33:00 PM

On 01/28/2016, 2 Sample(s), 0 Trip Blank(s) and 0 Field Blank(s) were received at Accutest Laboratories at a maximum corrected temperature of 1.4 C. Samples were intact and chemically preserved, unless noted below. An Accutest Job Number of JC13356 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

### Extractables by GCMS By Method SW846 8270D BY SIM

**Matrix:** AQ

**Batch ID:** OP90850A

- All samples were extracted within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JC13334-2MS, JC13334-2MSD were used as the QC samples indicated.

Accutest certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting Accutest's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

Accutest Laboratories is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by Accutest Laboratories indicated via signature on the report cover.

**Summary of Hits**

Job Number: JC13356

Account: Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Collected: 01/28/16

Lab Sample ID Analyte	Client Sample ID Qual	Result/ RL	MDL	Units	Method
--------------------------	--------------------------	---------------	-----	-------	--------

**JC13356-1      OB-32-012816**

No hits reported in this sample.

**JC13356-2      OB-31-012816**

1,4-Dioxane	0.414	0.10	0.053	ug/l	SW846 8270D BY SIM
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## Sample Results

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## Report of Analysis

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Accutest Laboratories

**Report of Analysis**

Page 1 of 1

**Client Sample ID:** OB-32-012816  
**Lab Sample ID:** JC13356-1  
**Matrix:** AQ - Ground Water  
**Method:** SW846 8270D BY SIM SW846 3510C  
**Project:** E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4P14974.D	1	02/02/16	AD	02/01/16	OP90850A	E4P768
Run #2							

	<b>Initial Volume</b>	<b>Final Volume</b>
Run #1	950 ml	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>RL</b>	<b>MDL</b>	<b>Units</b>	<b>Q</b>
----------------	-----------------	---------------	-----------	------------	--------------	----------

123-91-1	1,4-Dioxane	ND	0.11	0.056	ug/l	
----------	-------------	----	------	-------	------	--

<b>CAS No.</b>	<b>Surrogate Recoveries</b>	<b>Run# 1</b>	<b>Run# 2</b>	<b>Limits</b>
----------------	-----------------------------	---------------	---------------	---------------

4165-60-0	Nitrobenzene-d5	58%		24-125%
321-60-8	2-Fluorobiphenyl	74%		19-127%
1718-51-0	Terphenyl-d14	71%		10-119%

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound

Accutest Laboratories

**Report of Analysis**

Page 1 of 1

4.2

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**Client Sample ID:** OB-31-012816  
**Lab Sample ID:** JC13356-2  
**Matrix:** AQ - Ground Water  
**Method:** SW846 8270D BY SIM SW846 3510C  
**Project:** E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

	<b>File ID</b>	<b>DF</b>	<b>Analyzed</b>	<b>By</b>	<b>Prep Date</b>	<b>Prep Batch</b>	<b>Analytical Batch</b>
Run #1	4P14975.D	1	02/02/16	AD	02/01/16	OP90850A	E4P768
Run #2							

	<b>Initial Volume</b>	<b>Final Volume</b>
Run #1	1000 ml	1.0 ml
Run #2		

<b>CAS No.</b>	<b>Compound</b>	<b>Result</b>	<b>RL</b>	<b>MDL</b>	<b>Units</b>	<b>Q</b>
----------------	-----------------	---------------	-----------	------------	--------------	----------

123-91-1	1,4-Dioxane	0.414	0.10	0.053	ug/l	
----------	-------------	-------	------	-------	------	--

<b>CAS No.</b>	<b>Surrogate Recoveries</b>	<b>Run# 1</b>	<b>Run# 2</b>	<b>Limits</b>
----------------	-----------------------------	---------------	---------------	---------------

4165-60-0	Nitrobenzene-d5	53%		24-125%
321-60-8	2-Fluorobiphenyl	60%		19-127%
1718-51-0	Terphenyl-d14	66%		10-119%

ND = Not detected      MDL = Method Detection Limit  
 RL = Reporting Limit  
 E = Indicates value exceeds calibration range

J = Indicates an estimated value  
 B = Indicates analyte found in associated method blank  
 N = Indicates presumptive evidence of a compound



## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody



GU

## CHAIN OF CUSTODY

PAGE \_\_\_\_ OF \_\_\_\_

2235 Route 130, Dayton, NJ 08810  
TEL: 732-329-0200 FAX: 732-329-3499/3480  
www.accutest.com

Client / Reporting Information		Project Information		FED-EX Tracking #		Bottle Order Control #	
Company Name <b>Cornerstone Env. Group</b>		Project Name: <b>FORD, Ringwood Mines</b>		Accutest Quote #		Accutest Job # <b>JC13356</b>	
Street Address <b>100 Crystal Run Rd suite 101</b>		Street <b>Peters Mine Rd</b>		Billing Information ( if different from Report to )			
City <b>Middletown NY</b>	State <b>NY</b>	Zip <b>10941</b>	City <b>Ringwood, NJ</b>	Company Name			
Project Contact <b>Tim Roepel</b>		Project # <b>150648-007</b>		Street Address			
Phone # <b>845-695-0200</b>	Fax #	Client Purchase Order #		City		State Zip	
Sampler(s) Name(s) <b>John Skurat</b>		Phone # <b>Tim Roepel</b>		Project Manager		Attention:	
Accutest Sample #		Collection		Number of preserved Bottles		Matrix Codes	
Field ID / Point of Collection		MEOH/DI Vial #	Date	Time	Sampled by	Matrix	# of bottles
1	OB-32-012816		01/28/16	10:01	JS GW	2	<input checked="" type="checkbox"/> NICH <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NONE <input type="checkbox"/> DI Water <input type="checkbox"/> MECH <input type="checkbox"/> ENONE
2	OB-31-012816		01/28/16	12:31	JS GW	2	<input checked="" type="checkbox"/> X <input type="checkbox"/> X <input type="checkbox"/> X
Turnaround Time ( Business days)		Data Deliverable Information		Comments / Special Instructions		LAB USE ONLY	
<input checked="" type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> 5 Day RUSH <input type="checkbox"/> 3 Day RUSH <input type="checkbox"/> 2 Day RUSH <input type="checkbox"/> 1 Day RUSH <input type="checkbox"/> other _____		Approved By (Accutest PM): Date: _____ <input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> NYASP Category A <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> NYASP Category B <input type="checkbox"/> FULL1 (Level 3+) <input type="checkbox"/> State Forms <input type="checkbox"/> NJ Reduced <input type="checkbox"/> EDD Format _____ <input type="checkbox"/> Commercial "C" <input type="checkbox"/> Other _____ <small>NJ Data of Known Quality Protocol Reporting</small> Commercial "A" = Results Only, Commercial "B" = Results + QC Summary <small>NJ Reduced = Results + QC Summary + Partial Raw data</small>		<b>INITIAL ASSESSMENT</b> <i>Apr 25</i> <b>LABEL VERIFICATION</b> <i>Apr 10</i>		e8	
Emergency & Rush T/A data available VIA LabLink		Sample Custody must be documented below each time samples change possession, Including courier delivery.					
1	Daniel Auley	Date Time: <b>01/28/16</b>	Received By: <b>1</b>	13:39	Released By: <b>2</b>	Date Time: <b>1/28/16</b>	Received By: <b>2</b>
3		Date Time:	Received By:		Released By:	Date Time:	Received By:
4							
5		Date Time:	Received By:	Custody Seal #	<input type="checkbox"/> Intact <input type="checkbox"/> Preserved where applicable	On Ice <b>1.0 C IP</b>	Cooler Temp.
			<b>5</b>		<input type="checkbox"/> Not intact		

JC13356: Chain of Custody

Page 1 of 2



## Accutest Laboratories Sample Receipt Summary

Accutest Job Number: JC13356 Client: \_\_\_\_\_ Project: \_\_\_\_\_  
Date / Time Received: 1/28/2016 5:32:00 PM Delivery Method: \_\_\_\_\_ Airbill #'s: \_\_\_\_\_

Cooler Temps (Raw Measured) °C: Cooler 1: (1.0);

Cooler Temps (Corrected) °C: Cooler 1: (1.4);

<b>Cooler Security</b>	<b>Y or N</b>	<b>Y or N</b>	
1. Custody Seals Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/> <input type="checkbox"/>	4. Smpl Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<b>Cooler Temperature</b>	<b>Y or N</b>
1. Temp criteria achieved:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Cooler temp verification:	IR Gun
3. Cooler media:	Ice (Bag)
4. No. Coolers:	1

<b>Quality Control Preservation</b>	<b>Y or N</b>	<b>N/A</b>
1. Trip Blank present / cooler:	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/> <input checked="" type="checkbox"/> <input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/> <input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/>	

Comments

Accutest Laboratories  
V:732.329.0200

2235 US Highway 130  
P: 732.329.3499

Dayton, New Jersey  
[www.accutest.com](http://www.accutest.com)

### Sample Integrity - Documentation

- | <b>Y or N</b>                          |  |
|--|--|
| 1. Sample labels present on bottles:   | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. Container labeling complete:        | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 3. Sample container label / COC agree: | <input checked="" type="checkbox"/> <input type="checkbox"/> |

### Sample Integrity - Condition

- | <b>Y or N</b>                    |  |
|----------------------------------|--|
| 1. Sample recvd within HT:       | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 2. All containers accounted for: | <input checked="" type="checkbox"/> <input type="checkbox"/> |
| 3. Condition of sample:          | Intact   |

### Sample Integrity - Instructions

- | <b>Y or N</b>                             | <b>N/A</b>  |
|---|---|
| 1. Analysis requested is clear:           | <input checked="" type="checkbox"/> <input type="checkbox"/>                          |
| 2. Bottles received for unspecified tests | <input type="checkbox"/> <input checked="" type="checkbox"/>                          |
| 3. Sufficient volume recvd for analysis:  | <input checked="" type="checkbox"/> <input type="checkbox"/>                          |
| 4. Compositing instructions clear:        | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> |
| 5. Filtering instructions clear:          | <input type="checkbox"/> <input type="checkbox"/> <input checked="" type="checkbox"/> |

**JC13356: Chain of Custody**

**Page 2 of 2**

5.1

## Internal Sample Tracking Chronicle

Cornerstone Environmental Group, LLC

Job No: JC13356

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ  
Project No: 150648-007

Sample Number	Method	Analyzed By	Prepped By	Test Codes
JC13356-1	Collected: 28-JAN-16 10:01 By: JS OB-32-012816		Received: 28-JAN-16 By: AS	
JC13356-1	SW846 8270D BY SIM 02-FEB-16 14:46	AD	01-FEB-16 NG	B8270SIM14DIOX
JC13356-2	Collected: 28-JAN-16 12:31 By: JS OB-31-012816		Received: 28-JAN-16 By: AS	
JC13356-2	SW846 8270D BY SIM 02-FEB-16 15:17	AD	01-FEB-16 NG	B8270SIM14DIOX

## Accutest Internal Chain of Custody

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Received: 01/28/16

Sample/Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JC13356-1.1	Secured Storage	Todd Shoemaker	01/29/16 14:49	Retrieve from Storage
JC13356-1.1	Todd Shoemaker	Secured Staging Area	01/29/16 14:50	Return to Storage
JC13356-1.1	Secured Staging Area	Ryan Fantasia	01/29/16 14:58	Retrieve from Storage
JC13356-1.1	Ryan Fantasia		01/29/16 23:15	Depleted
JC13356-1.1	Gage Donahue	Secured Storage	02/01/16 07:36	Return to Storage
Analyst chain of custody update error.				
JC13356-1.1	Secured Storage	Nicholas Goydish	02/01/16 07:37	Retrieve from Storage
JC13356-1.1	Nicholas Goydish		02/01/16 13:59	Depleted
JC13356-1.1.1	Nicholas Goydish	Organics Prep	02/01/16 07:37	Extract from JC13356-1.1
JC13356-1.1.1	Organics Prep	Nicholas Goydish	02/01/16 14:18	Extract from JC13356-1.1
JC13356-1.1.1	Nicholas Goydish	Extract Storage	02/01/16 14:18	Return to Storage
JC13356-2.2	Secured Storage	Todd Shoemaker	01/29/16 14:49	Retrieve from Storage
JC13356-2.2	Todd Shoemaker	Secured Staging Area	01/29/16 14:50	Return to Storage
JC13356-2.2	Secured Staging Area	Ryan Fantasia	01/29/16 14:58	Retrieve from Storage
JC13356-2.2	Ryan Fantasia		01/29/16 23:15	Depleted
JC13356-2.2	Gage Donahue	Secured Storage	02/01/16 07:36	Return to Storage
Analyst chain of custody update error.				
JC13356-2.2	Secured Storage	Nicholas Goydish	02/01/16 07:37	Retrieve from Storage
JC13356-2.2	Nicholas Goydish		02/01/16 13:59	Depleted
JC13356-2.2.1	Nicholas Goydish	Organics Prep	02/01/16 07:37	Extract from JC13356-2.2
JC13356-2.2.1	Organics Prep	Nicholas Goydish	02/01/16 14:18	Extract from JC13356-2.2
JC13356-2.2.1	Nicholas Goydish	Extract Storage	02/01/16 14:18	Return to Storage



## GC/MS Semi-volatiles

### QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Blank Spike Summaries
- Matrix Spike and Duplicate Summaries
- Instrument Performance Checks (DFTPP)
- Internal Standard Area Summaries
- Surrogate Recovery Summaries
- Initial and Continuing Calibration Summaries



**Method Blank Summary**

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90850A-MB1	3M59619.D	1	02/01/16	LK	02/01/16	OP90850A	E3M2785

The QC reported here applies to the following samples:

**Method:** SW846 8270D BY SIM

JC13356-1, JC13356-2

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.10	0.053	ug/l	

CAS No.	Surrogate Recoveries	Limits	
4165-60-0	Nitrobenzene-d5	84%	24-125%
321-60-8	2-Fluorobiphenyl	81%	19-127%
1718-51-0	Terphenyl-d14	100%	10-119%

**Method Blank Summary**

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90850A-MB1	P102315.D	1	02/02/16	LK	02/01/16	OP90850A	EP4488

The QC reported here applies to the following samples:

**Method:** SW846 8270D BY SIM

JC13356-1, JC13356-2

6.1.2  
6

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.10	0.053	ug/l	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	93% 24-125%
321-60-8	2-Fluorobiphenyl	90% 19-127%
1718-51-0	Terphenyl-d14	95% 10-119%

**Method Blank Summary**

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90850A-MB1	4P14973A.D	1	02/02/16	AD	02/01/16	OP90850A	E4P768

The QC reported here applies to the following samples:

**Method:** SW846 8270D BY SIM

JC13356-1, JC13356-2

6.1.3  
6

CAS No.	Compound	Result	RL	MDL	Units	Q
123-91-1	1,4-Dioxane	ND	0.10	0.053	ug/l	

CAS No.	Surrogate Recoveries	Limits
4165-60-0	Nitrobenzene-d5	84% 24-125%
321-60-8	2-Fluorobiphenyl	95% 19-127%
1718-51-0	Terphenyl-d14	103% 10-119%

**Blank Spike Summary**

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90850A-BS12	3M59620.D	1	02/01/16	LK	02/01/16	OP90850A	E3M2785

The QC reported here applies to the following samples:

**Method:** SW846 8270D BY SIM

JC13356-1, JC13356-2

CAS No.	Compound	Spike ug/l	BSP ug/l	BSP %	Limits
123-91-1	1,4-Dioxane	1	0.450	45	20-160

CAS No.	Surrogate Recoveries	BSP	Limits
4165-60-0	Nitrobenzene-d5	82%	24-125%
321-60-8	2-Fluorobiphenyl	76%	19-127%
1718-51-0	Terphenyl-d14	86%	10-119%

\* = Outside of Control Limits.

# Matrix Spike/Matrix Spike Duplicate Summary

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample	File ID	DF	Analyzed	By	Prep Date	Prep Batch	Analytical Batch
OP90850A-MS	3M59621.D	1	02/01/16	LK	02/01/16	OP90850A	E3M2785
OP90850A-MSD	3M59622.D	1	02/01/16	LK	02/01/16	OP90850A	E3M2785
JC13334-2	3M59624.D	1	02/01/16	LK	02/01/16	OP90850A	E3M2785

The QC reported here applies to the following samples:

Method: SW846 8270D BY SIM

JC13356-1, JC13356-2

CAS No.	Compound	JC13334-2		Spike	MS	MS	Spike	MSD	MSD	RPD	Limits Rec/RPD
		ug/l	Q	ug/l	ug/l	%	ug/l	ug/l	%		
123-91-1	1,4-Dioxane	ND		2	1.37	69	2	1.22	61	12	20-160/30

CAS No.	Surrogate Recoveries	MS	MSD	JC13334-2	Limits
4165-60-0	Nitrobenzene-d5	84%	80%	65%	24-125%
321-60-8	2-Fluorobiphenyl	76%	72%	61%	19-127%
1718-51-0	Terphenyl-d14	86%	80%	71%	10-119%

\* = Outside of Control Limits.

# Instrument Performance Check (DFTPP)

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample: E3M2780-DFTPP  
Lab File ID: 3M59535.D  
Instrument ID: GCMS3M

Injection Date: 01/26/16  
Injection Time: 16:21

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	423632	46.3	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	548062	59.9	Pass
70	Less than 2.0% of mass 69	3012	0.33 (0.55) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	513067	56.1	Pass
197	Less than 1.0% of mass 198	7181	0.79	Pass
198	Base peak, 100% relative abundance	914603	100.0	Pass
199	5.0 - 9.0% of mass 198	61035	6.67	Pass
275	10.0 - 30.0% of mass 198	196347	21.5	Pass
365	1.0 - 100.0% of mass 198	21130	2.31	Pass
441	Present, but less than mass 443	90520	9.90 (82.2) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	567331	62.0	Pass
443	17.0 - 23.0% of mass 442	110067	12.0 (19.4) <sup>c</sup>	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M2780-ICC2780	3M59536.D	01/26/16	16:43	00:22	Initial cal 1
E3M2780-IC2780	3M59537.D	01/26/16	17:15	00:54	Initial cal 0.5
E3M2780-IC2780	3M59538.D	01/26/16	17:47	01:26	Initial cal 0.2
E3M2780-IC2780	3M59539.D	01/26/16	18:18	01:57	Initial cal 0.1
E3M2780-IC2780	3M59540.D	01/26/16	18:50	02:29	Initial cal 0.05
E3M2780-IC2780	3M59541.D	01/26/16	19:22	03:01	Initial cal 0.02
E3M2780-IC2780	3M59542.D	01/26/16	19:53	03:32	Initial cal 0.01
E3M2780-IC2780	3M59543.D	01/26/16	20:25	04:04	Initial cal 5
E3M2780-IC2780	3M59544.D	01/26/16	20:57	04:36	Initial cal 2.5
E3M2780-ICV2780	3M59545.D	01/26/16	21:29	05:08	Initial cal verification 1
E3M2780-ICV2780	3M59546.D	01/26/16	22:02	05:41	Initial cal verification 1
E3M2780-ICV2780	3M59547.D	01/26/16	22:34	06:13	Initial cal verification 1

# Instrument Performance Check (DFTPP)

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample:	E3M2785-DFTPP	Injection Date:	02/01/16
Lab File ID:	3M59612.D	Injection Time:	10:22
Instrument ID:	GCMS3M		

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	316208	45.2	Pass
68	Less than 2.0% of mass 69	0	0.00	(0.00) <sup>a</sup> Pass
69	Mass 69 relative abundance	402531	57.6	Pass
70	Less than 2.0% of mass 69	1567	0.22	(0.39) <sup>a</sup> Pass
127	40.0 - 60.0% of mass 198	379352	54.2	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	699391	100.0	Pass
199	5.0 - 9.0% of mass 198	48062	6.87	Pass
275	10.0 - 30.0% of mass 198	150894	21.6	Pass
365	1.0 - 100.0% of mass 198	17022	2.43	Pass
441	Present, but less than mass 443	74203	10.6	(82.2) <sup>b</sup> Pass
442	40.0 - 100.0% of mass 198	458901	65.6	Pass
443	17.0 - 23.0% of mass 442	90272	12.9	(19.7) <sup>c</sup> Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E3M2785-CC2780	3M59613.D	02/01/16	10:35	00:13	Continuing cal 1
OP90824A-MB1	3M59614.D	02/01/16	11:06	00:44	Method Blank
ZZZZZZ	3M59615.D	02/01/16	11:38	01:16	(unrelated sample)
ZZZZZZ	3M59616.D	02/01/16	12:09	01:47	(unrelated sample)
ZZZZZZ	3M59617.D	02/01/16	12:41	02:19	(unrelated sample)
ZZZZZZ	3M59618.D	02/01/16	13:13	02:51	(unrelated sample)
OP90850A-MB1	3M59619.D	02/01/16	14:53	04:31	Method Blank
OP90850A-BS12	3M59620.D	02/01/16	15:25	05:03	Blank Spike
OP90850A-MS	3M59621.D	02/01/16	15:57	05:35	Matrix Spike
OP90850A-MSD	3M59622.D	02/01/16	16:29	06:07	Matrix Spike Duplicate
ZZZZZZ	3M59623.D	02/01/16	17:00	06:38	(unrelated sample)
JC13334-2	3M59624.D	02/01/16	17:32	07:10	(used for QC only; not part of job JC13356)
ZZZZZZ	3M59625.D	02/01/16	18:04	07:42	(unrelated sample)
ZZZZZZ	3M59626.D	02/01/16	18:36	08:14	(unrelated sample)

# Instrument Performance Check (DFTPP)

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Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample: E4P767-DFTPP  
 Lab File ID: 4P14945.D  
 Instrument ID: GCMS4P

Injection Date: 02/01/16  
 Injection Time: 16:06

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	44967	42.0	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	59960	56.0	Pass
70	Less than 2.0% of mass 69	24	0.02 (0.04) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	50540	47.2	Pass
197	Less than 1.0% of mass 198	542	0.51	Pass
198	Base peak, 100% relative abundance	106984	100.0	Pass
199	5.0 - 9.0% of mass 198	7920	7.40	Pass
275	10.0 - 30.0% of mass 198	27999	26.2	Pass
365	1.0 - 100.0% of mass 198	3301	3.09	Pass
441	Present, but less than mass 443	13533	12.6 (73.8) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	93328	87.2	Pass
443	17.0 - 23.0% of mass 442	18332	17.1 (19.6) <sup>c</sup>	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4P767-IC767	4P14948.D	02/01/16	17:52	01:46	Initial cal 0.5
E4P767-ICC767	4P14949.D	02/01/16	18:22	02:16	Initial cal 1.0
E4P767-IC767	4P14950.D	02/01/16	18:52	02:46	Initial cal 0.2
E4P767-IC767	4P14951.D	02/01/16	19:22	03:16	Initial cal 0.1
E4P767-IC767	4P14952.D	02/01/16	19:53	03:47	Initial cal 0.05
E4P767-IC767	4P14953.D	02/01/16	20:23	04:17	Initial cal 0.02
E4P767-IC767	4P14954.D	02/01/16	20:53	04:47	Initial cal 0.01
E4P767-IC767	4P14955.D	02/01/16	21:23	05:17	Initial cal 5
E4P767-IC767	4P14956.D	02/01/16	21:54	05:48	Initial cal 2.5
E4P767-ICV767	4P14957.D	02/01/16	22:24	06:18	Initial cal verification 1.0
E4P767-ICV767	4P14958.D	02/01/16	22:54	06:48	Initial cal verification 1.0
E4P767-ICV767	4P14959.D	02/01/16	23:24	07:18	Initial cal verification 1.0

# Instrument Performance Check (DFTPP)

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Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample: E4P768-DFTPP  
 Lab File ID: 4P14960.D  
 Instrument ID: GCMS4P

Injection Date: 02/02/16  
 Injection Time: 08:59

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	44818	43.2	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	58450	56.3	Pass
70	Less than 2.0% of mass 69	321	0.31 (0.55) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	48525	46.8	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	103773	100.0	Pass
199	5.0 - 9.0% of mass 198	6758	6.51	Pass
275	10.0 - 30.0% of mass 198	27705	26.7	Pass
365	1.0 - 100.0% of mass 198	3210	3.09	Pass
441	Present, but less than mass 443	13861	13.4 (71.6) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	94866	91.4	Pass
443	17.0 - 23.0% of mass 442	19354	18.7 (20.4) <sup>c</sup>	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
E4P768-CC767	4P14961.D	02/02/16	09:10	00:11	Continuing cal 1.0
ZZZZZZ	4P14962.D	02/02/16	09:41	00:42	(unrelated sample)
ZZZZZZ	4P14964.D	02/02/16	10:11	01:12	(unrelated sample)
JC13142-11Q	4P14986.D	02/02/16	10:41	01:42	(used for QC only; not part of job JC13356)
ZZZZZZ	4P14965.D	02/02/16	11:12	02:13	(unrelated sample)
ZZZZZZ	4P14966.D	02/02/16	11:42	02:43	(unrelated sample)
ZZZZZZ	4P14967.D	02/02/16	12:12	03:13	(unrelated sample)
ZZZZZZ	4P14971.D	02/02/16	13:12	04:13	(unrelated sample)
ZZZZZZ	4P14972.D	02/02/16	13:42	04:43	(unrelated sample)
OP90850A-MB1	4P14973A.D	02/02/16	14:16	05:17	Method Blank
JC13356-1	4P14974.D	02/02/16	14:46	05:47	OB-32-012816
JC13356-2	4P14975.D	02/02/16	15:17	06:18	OB-31-012816
ZZZZZZ	4P14976.D	02/02/16	15:47	06:48	(unrelated sample)
ZZZZZZ	4P14977.D	02/02/16	16:17	07:18	(unrelated sample)
ZZZZZZ	4P14978.D	02/02/16	16:48	07:49	(unrelated sample)
ZZZZZZ	4P14979.D	02/02/16	17:18	08:19	(unrelated sample)
ZZZZZZ	4P14980.D	02/02/16	17:48	08:49	(unrelated sample)
ZZZZZZ	4P14981.D	02/02/16	18:18	09:19	(unrelated sample)
ZZZZZZ	4P14982.D	02/02/16	18:49	09:50	(unrelated sample)

## Instrument Performance Check (DFTPP)

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Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample:	E4P768-DFTPP	Injection Date:	02/02/16
Lab File ID:	4P14960.D	Injection Time:	08:59
Instrument ID:	GCMS4P		

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
ZZZZZZ	4P14983.D	02/02/16	19:19	10:20	(unrelated sample)
ZZZZZZ	4P14984.D	02/02/16	19:49	10:50	(unrelated sample)
ZZZZZZ	4P14985.D	02/02/16	20:19	11:20	(unrelated sample)

6.4.4  
6

# Instrument Performance Check (DFTPP)

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Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample: EP4411-DFTPP  
Lab File ID: P100854.D  
Instrument ID: GCMSP

Injection Date: 12/04/15  
Injection Time: 20:16

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	16166	30.2	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	20498	38.3	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	25336	47.3	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	53544	100.0	Pass
199	5.0 - 9.0% of mass 198	3567	6.66	Pass
275	10.0 - 30.0% of mass 198	9294	17.4	Pass
365	1.0 - 100.0% of mass 198	868	1.62	Pass
441	Present, but less than mass 443	5368	10.0 (76.2) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	34370	64.2	Pass
443	17.0 - 23.0% of mass 442	7045	13.2 (20.5) <sup>c</sup>	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP4411-IC4411	P100855.D	12/04/15	20:37	00:21	Initial cal 100
EP4411-IC4411	P100856.D	12/04/15	21:06	00:50	Initial cal 80
EP4411-ICC4411	P100857.D	12/04/15	21:35	01:19	Initial cal 50
EP4411-IC4411	P100858.D	12/04/15	22:05	01:49	Initial cal 25
EP4411-IC4411	P100859.D	12/04/15	22:34	02:18	Initial cal 10
EP4411-IC4411	P100860.D	12/04/15	23:03	02:47	Initial cal 5
EP4411-IC4411	P100861.D	12/04/15	23:33	03:17	Initial cal 2
EP4411-IC4411	P100862.D	12/05/15	00:02	03:46	Initial cal 1

# Instrument Performance Check (DFTPP)

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample: EP4412-DFTPP  
Lab File ID: P100865.D  
Instrument ID: GCMSP

Injection Date: 12/07/15  
Injection Time: 08:47

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	26011	30.4	Pass
68	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
69	Mass 69 relative abundance	32120	37.5	Pass
70	Less than 2.0% of mass 69	0	0.00 (0.00) <sup>a</sup>	Pass
127	40.0 - 60.0% of mass 198	39957	46.6	Pass
197	Less than 1.0% of mass 198	0	0.00	Pass
198	Base peak, 100% relative abundance	85698	100.0	Pass
199	5.0 - 9.0% of mass 198	5720	6.67	Pass
275	10.0 - 30.0% of mass 198	14827	17.3	Pass
365	1.0 - 100.0% of mass 198	1242	1.45	Pass
441	Present, but less than mass 443	7793	9.09 (78.9) <sup>b</sup>	Pass
442	40.0 - 100.0% of mass 198	49386	57.6	Pass
443	17.0 - 23.0% of mass 442	9882	11.5 (20.0) <sup>c</sup>	Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP4412-IC4412	P100866.D	12/07/15	09:10	00:23	Initial cal 100
EP4412-IC4412	P100867.D	12/07/15	09:43	00:56	Initial cal 80
EP4412-ICC4412	P100868.D	12/07/15	10:13	01:26	Initial cal 50
EP4412-IC4412	P100869.D	12/07/15	10:42	01:55	Initial cal 25
EP4412-IC4412	P100870.D	12/07/15	11:12	02:25	Initial cal 10
EP4412-IC4412	P100871.D	12/07/15	11:42	02:55	Initial cal 5
EP4412-IC4412	P100872.D	12/07/15	12:12	03:25	Initial cal 2
EP4412-IC4412	P100873.D	12/07/15	12:42	03:55	Initial cal 1
EP4412-ICV4411	P100874.D	12/07/15	13:12	04:25	Initial cal verification 50
EP4412-ICV4412	P100874A.D	12/07/15	13:12	04:25	Initial cal verification 50
EP4412-ICV4412	P100875A.D	12/07/15	13:42	04:55	Initial cal verification 50
EP4412-ICV4411	P100875.D	12/07/15	13:42	04:55	Initial cal verification 50
EP4412-ICV4411	P100876.D	12/07/15	14:11	05:24	Initial cal verification 50
EP4412-ICV4411	P100877.D	12/07/15	14:41	05:54	Initial cal verification 50
EP4412-ICV4411	P100878.D	12/07/15	15:11	06:24	Initial cal verification 50
EP4412-ICV4412	P100879.D	12/07/15	15:40	06:53	Initial cal verification 50

# Instrument Performance Check (DFTPP)

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Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Sample: EP4488-DFTPP  
Lab File ID: P102305.D  
Instrument ID: GCMSP

Injection Date: 02/02/16  
Injection Time: 08:44

m/e	Ion Abundance Criteria	Raw Abundance	% Relative Abundance	Pass/Fail
51	30.0 - 60.0% of mass 198	24935	41.0	Pass
68	Less than 2.0% of mass 69	522	0.86	(1.75) <sup>a</sup> Pass
69	Mass 69 relative abundance	29900	49.2	Pass
70	Less than 2.0% of mass 69	0	0.00	(0.00) <sup>a</sup> Pass
127	40.0 - 60.0% of mass 198	31678	52.1	Pass
197	Less than 1.0% of mass 198	121	0.20	Pass
198	Base peak, 100% relative abundance	60770	100.0	Pass
199	5.0 - 9.0% of mass 198	4206	6.92	Pass
275	10.0 - 30.0% of mass 198	10616	17.5	Pass
365	1.0 - 100.0% of mass 198	1328	2.19	Pass
441	Present, but less than mass 443	5089	8.37	(82.8) <sup>b</sup> Pass
442	40.0 - 100.0% of mass 198	31603	52.0	Pass
443	17.0 - 23.0% of mass 442	6144	10.1	(19.4) <sup>c</sup> Pass

(a) Value is % of mass 69

(b) Value is % of mass 443

(c) Value is % of mass 442

This check applies to the following Samples, MS, MSD, Blanks, and Standards:

Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	Hours Lapsed	Client Sample ID
EP4488-CC4411	P102306.D	02/02/16	08:55	00:11	Continuing cal 50
OP90915-MB1	P102307.D	02/02/16	09:24	00:40	Method Blank
ZZZZZZ	P102308.D	02/02/16	09:54	01:10	(unrelated sample)
ZZZZZZ	P102309.D	02/02/16	10:23	01:39	(unrelated sample)
ZZZZZZ	P102310.D	02/02/16	10:52	02:08	(unrelated sample)
ZZZZZZ	P102311.D	02/02/16	11:21	02:37	(unrelated sample)
ZZZZZZ	P102312.D	02/02/16	11:51	03:07	(unrelated sample)
ZZZZZZ	P102313.D	02/02/16	12:20	03:36	(unrelated sample)
ZZZZZZ	P102314.D	02/02/16	12:50	04:06	(unrelated sample)
OP90850-MB1	P102315.D	02/02/16	13:19	04:35	Method Blank
OP90850A-MB1	P102315.D	02/02/16	13:19	04:35	Method Blank
ZZZZZZ	P102326.D	02/02/16	13:49	05:05	(unrelated sample)
OP90825A-MB1	P102316.D	02/02/16	14:18	05:34	Method Blank
OP90919-MB1	P102317.D	02/02/16	14:48	06:04	Method Blank
OP90919-BS1	P102318.D	02/02/16	15:17	06:33	Blank Spike
OP90919-BSD	P102319.D	02/02/16	15:46	07:02	Blank Spike Duplicate
ZZZZZZ	P102320.D	02/02/16	16:15	07:31	(unrelated sample)
ZZZZZZ	P102321.D	02/02/16	16:44	08:00	(unrelated sample)
ZZZZZZ	P102324.D	02/02/16	18:12	09:28	(unrelated sample)

## Semivolatile Internal Standard Area Summary

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Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Check Std:	E3M2785-CC2780	Injection Date:	02/01/16
Lab File ID:	3M59613.D	Injection Time:	10:35
Instrument ID:	GCMS3M	Method:	SW846 8270D BY SIM

	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	
	RT	RT	RT	RT	
Check Std	469233	9.58	579988	12.56	986851
Upper Limit <sup>a</sup>	938466	10.08	1159976	13.06	1973702
Lower Limit <sup>b</sup>	234617	9.08	289994	12.06	493426
					16.78 838158 21.39
					17.28 1676316 21.89
					16.28 419079 20.89

Lab Sample ID	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	
	RT	RT	RT	RT	
OP90824A-MB1	488810	9.58	619240	12.56	986859
ZZZZZZ	506935	9.58	661935	12.56	1049480
ZZZZZZ	502338	9.58	659721	12.56	1036853
ZZZZZZ	484113	9.58	634824	12.56	1008888
ZZZZZZ	507570	9.58	616107	12.56	999297
OP90850A-MB1	532693	9.58	660167	12.56	1017766
OP90850A-BS12	551966	9.58	710422	12.56	1048714
OP90850A-MS	495091	9.58	674698	12.56	1021429
OP90850A-MSD	511055	9.58	698427	12.56	1081384
ZZZZZZ	452307	9.58	618274	12.56	972079
JC13334-2	484080	9.58	667711	12.56	1043864
ZZZZZZ	462498	9.58	653556	12.56	1023724
	460655	9.58	645609	12.56	1005192
					16.78 825152 21.38

**IS 1** = 1-Methylnaphthalene-d10

**IS 2** = Fluorene-d10

**IS 3** = Fluoranthene-d10

**IS 4** = Benzo(a)pyrene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Check Std:	E4P768-CC767	Injection Date:	02/02/16
Lab File ID:	4P14961.D	Injection Time:	09:10
Instrument ID:	GCMS4P	Method:	SW846 8270D BY SIM

	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	
Check Std	106499	8.73	148800	11.72	222359
Upper Limit <sup>a</sup>	212998	9.23	297600	12.22	444718
Lower Limit <sup>b</sup>	53250	8.23	74400	11.22	111180

Lab Sample ID	IS 1 AREA	IS 2 AREA	IS 3 AREA	IS 4 AREA	
ZZZZZZ	103126	8.73	154406	11.72	224054
ZZZZZZ	116115	8.73	190621	11.72	269950
JC13142-11Q	113258	8.73	182462	11.72	254535
ZZZZZZ	125075	8.73	164140	11.71	257180
ZZZZZZ	149859	8.73	190789	11.71	324955
ZZZZZZ	129594	8.73	170123	11.71	280913
ZZZZZZ	118679	8.73	136672	11.71	246652
ZZZZZZ	121783	8.73	141886	11.71	255614
OP90850A-MB1	124228	8.73	150190	11.72	248380
JC13356-1	111947	8.73	128480	11.71	228283
JC13356-2	121419	8.73	161507	11.72	240753
ZZZZZZ	117386	8.73	167748	11.72	245770
ZZZZZZ	121157	8.73	146909	11.71	249219
ZZZZZZ	118916	8.73	153561	11.71	266714
ZZZZZZ	120625	8.73	184384	11.72	273701
ZZZZZZ	121298	8.73	145562	11.71	250909
ZZZZZZ	120915	8.73	148588	11.71	247395
ZZZZZZ	122091	8.73	149077	11.71	246214
ZZZZZZ	110962	8.73	167618	11.72	235337
ZZZZZZ	119553	8.73	191307	11.72	253303
ZZZZZZ	103584	8.73	172685	11.72	236842

**IS 1** = 1-Methylnaphthalene-d10

**IS 2** = Fluorene-d10

**IS 3** = Fluoranthene-d10

**IS 4** = Benzo(a)pyrene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

# Semivolatile Internal Standard Area Summary

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Check Std:	EP4488-CC4411	Injection Date:	02/02/16
Lab File ID:	P102306.D	Injection Time:	08:55
Instrument ID:	GCMSP	Method:	SW846 8270D BY SIM

	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT
Check Std	60537	4.26	239790	6.01	136098	8.72	203268	11.08	211220	15.78	185598	18.34
Upper Limit <sup>a</sup>	121074	4.76	479580	6.51	272196	9.22	406536	11.58	422440	16.28	371196	18.84
Lower Limit <sup>b</sup>	30269	3.76	119895	5.51	68049	8.22	101634	10.58	105610	15.28	92799	17.84

Lab Sample ID	IS 1 AREA	IS 1 RT	IS 2 AREA	IS 2 RT	IS 3 AREA	IS 3 RT	IS 4 AREA	IS 4 RT	IS 5 AREA	IS 5 RT	IS 6 AREA	IS 6 RT
OP90915-MB1	68488	4.26	263001	6.00	142338	8.72	211370	11.07	180540	15.77	168946	18.34
ZZZZZZ	62759	4.26	243769	6.00	131564	8.72	195784	11.07	165685	15.77	147604	18.33
ZZZZZZ	60265	4.26	226666	6.00	119019	8.72	184825	11.07	160074	15.77	143377	18.33
ZZZZZZ	53020	4.26	207299	6.00	112040	8.71	172706	11.07	148492	15.77	130533	18.33
ZZZZZZ	59764	4.26	225978	6.00	123824	8.71	181529	11.07	163920	15.77	144435	18.33
ZZZZZZ	57222	4.26	215336	6.00	113289	8.71	173498	11.07	155741	15.77	139048	18.33
ZZZZZZ	56691	4.26	216958	6.00	114954	8.71	173968	11.07	152563	15.77	136691	18.33
ZZZZZZ	54320	4.26	209992	6.00	121517	8.72	181378	11.08	171480	15.77	159054	18.33
OP90850-MB1 <sup>c</sup>	70743	4.26	273755	6.00	146527	8.72	222937	11.07	195592	15.77	180897	18.33
OP90850A-MB1	70743	4.26	273755	6.00	146527	8.72	222937	11.07	195592	15.77	180897	18.33
ZZZZZZ	54812	4.26	215045	6.00	121667	8.71	187859	11.07	164235	15.77	149146	18.33
OP90825A-MB1	64375	4.26	245705	6.00	135682	8.71	208268	11.07	186545	15.77	171871	18.33
OP90919-MB1	56503	4.26	217096	6.00	121359	8.71	184720	11.07	164216	15.77	149711	18.33
OP90919-BS1	57700	4.26	221510	6.00	126976	8.72	187021	11.07	194539	15.77	164329	18.33
OP90919-BSD	64181	4.26	246309	6.00	137271	8.72	201530	11.07	201914	15.77	170863	18.33
ZZZZZZ	59024	4.26	229229	6.00	124200	8.71	190993	11.07	168253	15.76	156166	18.33
ZZZZZZ	54891	4.26	200198	6.00	114042	8.71	171662	11.07	151696	15.77	136517	18.33
ZZZZZZ	62069	4.26	258580	6.00	153418	8.72	243965	11.08	229882	15.77	213375	18.33

**IS 1** = 1,4-Dichlorobenzene-d4

**IS 2** = Naphthalene-d8

**IS 3** = Acenaphthene-D10

**IS 4** = Phenanthrene-d10

**IS 5** = Chrysene-d12

**IS 6** = Perylene-d12

(a) Upper Limit = + 100% of check standard area; Retention time + 0.5 minutes.

(b) Lower Limit = -50% of check standard area; Retention time -0.5 minutes.

(c) missing tic

# Semivolatile Surrogate Recovery Summary

Page 1 of 1

Job Number: JC13356

Account: CORNNYM Cornerstone Environmental Group, LLC

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Method: SW846 8270D BY SIM

Matrix: AQ

Samples and QC shown here apply to the above method

Lab Sample ID	Lab File ID	S1	S2	S3
JC13356-1	4P14974.D	58	74	71
JC13356-2	4P14975.D	53	60	66
OP90850A-BS12	3M59620.D	82	76	86
OP90850A-MB1	3M59619.D	84	81	100
OP90850A-MB1	P102315.D	93	90	95
OP90850A-MB1	4P14973A.D	84	95	103
OP90850A-MS	3M59621.D	84	76	86
OP90850A-MSD	3M59622.D	80	72	80

Surrogate  
Compounds

Recovery  
Limits

S1 = Nitrobenzene-d5

24-125%

S2 = 2-Fluorobiphenyl

19-127%

S3 = Terphenyl-d14

10-119%

6.6.1  
6

**Initial Calibration Summary**

Job Number: JC13356

Sample: E3M2780-ICC2780

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 3M59536.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Response Factor Report MS3M

Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M ( RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Wed Jan 27 11:45:36 2016  
 Response via : Initial Calibration

## Calibration Files

2.5 =3m59544.D 1.0 =3m59536.D 0.5 =3m59537.D 0.2 =3m59538.D  
 0.1 =3m59539.D 0.05=3m59540.D 0.02=3m59541.D 0.01=3m59542.D  
 5 =3m59543.D = = =

## Compound

	2.5	1.0	0.5	0.2	0.1	0.05	0.02	0.01	5	Avg	%RSD
<hr/>											
1) I 1-Methylnaphthalene-d										-----ISTD-----	
2) 1,4-dioxane	0.243	0.252	0.305	0.357	0.309	0.287			0.205	0.280	18.01
3) 2-Fluorophenol	0.566	0.570	0.590	0.680	0.563	0.481	0.458	0.438	0.511	0.540	13.97
4) Phenol-d5	0.954	0.954	0.982	1.126	0.913	0.780	0.723	0.679	0.872	0.887	15.81
5) Phenol	1.042	1.040	1.076	1.250	1.041	0.907	0.841		0.976	1.022	11.93
6) bis(2-Chloroethyl)ether	0.731	0.736	0.769	0.910	0.780	0.692	0.742	0.755	0.696	0.757	8.53
7) Nitrobenzene-d5	0.903	0.879	0.896	1.012	0.786	0.642		0.715		0.833	15.15
8) Naphthalene	2.443	2.463	2.536	2.957	2.568	2.308	2.420	2.460	2.376	2.503	7.46
9) Hexachlorobutadiene	0.385	0.378	0.391	0.458	0.390	0.360	0.381	0.383	0.368	0.388	7.18
10) 2-Methylnaphthalene	1.224	1.213	1.209	1.384	1.144	1.010	1.055	1.114	1.200	1.172	9.34
11) 1-Methylnaphthalene	1.359	1.370	1.395	1.591	1.330	1.243	1.286	1.356	1.329	1.362	7.15
12) Hexachlorocyclopentadiene	0.409	0.396	0.366	0.396	0.303	0.255		0.415		0.363	16.81
13) I Fluorene-d10									-----ISTD-----		
14) 2-Fluorobiphenyl	1.110	1.192	1.290	1.629	1.384	1.313	1.322	1.281		1.315	11.57
15) Acenaphthylene	1.503	1.474	1.447	1.570	1.173	1.050	1.019	1.001	1.433	1.297	17.90
16) Acenaphthene	0.977	1.019	1.008	1.175	1.012	0.883	0.884	0.881	0.927	0.974	9.76
17) 4,6-dinitro-2-methylphenol	0.144	0.102	0.065	0.051	0.027		0.177		0.094		61.19
	---- Quadratic regression ---- Coefficient = 0.9994										
	Response Ratio = -0.02202 + 0.11507 *A + 0.01048 *A^2										
18) Fluorene	1.134	1.170	1.240	1.479	1.196	1.170	1.171	1.195	1.047	1.200	9.78
19) 2,4,6-Tribromophenol	0.116	0.117	0.119	0.128	0.079		0.103		0.110		15.85
20) I Fluoranthene-d10									-----ISTD-----		
21) Hexachlorobenzene	0.222	0.203	0.221	0.254	0.217	0.199	0.206	0.220	0.212	0.217	7.45

**Initial Calibration Summary****Job Number:** JC13356**Sample:**

E3M2780-ICC2780

**Account:**

CORNNYM Cornerstone Environmental Group, LLC

**Lab FileID:**

3M59536.D

**Project:**

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

22)	Pentachlorophenol	0.136 0.108 0.094 0.081 0.042 0.032	0.134	0.089	46.03
---- Quadratic regression ---- Coefficient = 0.9987					
Response Ratio = -0.01618 + 0.13523 *A + 0.00035 *A^2					
23)	Phenanthrene	1.196 1.108 1.163 1.290 1.113 0.963 0.963	1.152	1.118	9.96
24)	Anthracene	1.181 0.986 0.989 0.963 0.710	1.155	0.997	16.95
25)	Fluoranthene	1.328 1.244 1.309 1.487 1.224 1.294	1.262	1.307	6.68
26)	Pyrene	1.321 1.197 1.158 1.169 0.890	1.307	1.174	13.24
27)	Terphenyl-d14	0.597 0.680 0.722 0.808 0.647 0.536	0.432	0.632	19.62
28)	Benzo[a]anthracene	0.976 1.013 0.821 0.655 0.516 0.373	1.155	0.787	36.15
---- Quadratic regression ---- Coefficient = 0.9993					
Response Ratio = -0.00467 + 0.85988 *A + 0.23729 *A^2					
29)	Chrysene	1.179 1.118 1.070 1.090 0.915	1.157	1.088	8.62
30)	I Benzo(a)pyrene-d12	-----1STD-----			
31)	Benzo[b]fluoranthene	1.695 1.335 1.228 1.064 0.672	1.617	1.268	29.65
---- Linear regression ---- Coefficient = 0.9980					
Response Ratio = -0.03801 + 1.66272 *A					
32)	Benzo[k]fluoranthene	1.287 1.238 1.298 1.340 0.843	1.295	1.217	15.28
33)	Benzo[a]pyrene	1.368 1.224 1.244 1.536 1.418 1.532	1.276	1.371	9.52
34)	Indeno[1,2,3-cd]pyrene	1.305 1.363 1.225 1.111 0.660	1.351	1.169	22.77
---- Linear regression ---- Coefficient = 0.9997					
Response Ratio = -0.01421 + 1.35699 *A					
35)	Dibenz[a,h]anthracene	1.086 1.106 0.985 0.895 0.544	1.133	0.958	23.10
---- Linear regression ---- Coefficient = 0.9997					
Response Ratio = -0.01625 + 1.13988 *A					
36)	Benzo[g,h,i]perylene	1.167 1.164 1.098 1.097 0.683	1.190	1.067	17.99

-----  
(#) = Out of Range   ### Number of calibration levels exceeded format   ###

M3M2780SIM.M           Wed Jan 27 12:00:38 2016   RPT1

6.7.1  
6

**Initial Calibration Verification**

Job Number: JC13356

Sample: E3M2780-ICV2780

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 3M59545.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\msdchem\1\DATA\E3M2780\3m59545.D Vial: 11  
 Acq On : 26 Jan 2016 9:29 pm Operator: juliusj  
 Sample : icv2780-1 Inst : MS3M  
 Misc : op89601a,e3m2780 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Wed Jan 27 11:45:36 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.	
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	166	0.00	9.60
6 t	bis(2-Chloroethyl)ether	0.757	0.704	7.0	159	0.00	5.42
8 t	Naphthalene	2.503	2.388	4.6	161	0.00	8.14
9 t	Hexachlorobutadiene	0.388	0.370	4.6	163	0.00	8.44
10 t	2-Methylnaphthalene	1.172	1.201	-2.5	164	0.00	9.48
13 I	Fluorene-d10	1.000	1.000	0.0	163	0.00	12.60
15 t	Acenaphthylene	1.297	1.360	-4.9	150	0.00	11.24
16 t	Acenaphthene	0.974	1.015	-4.2	162	0.02	11.61
18 t	Fluorene	----- 1.200	----- 1.119	----- 6.7	----- 156	----- 0.00	----- 12.63
20 I	Fluoranthene-d10	1.000	1.000	0.0	159	0.00	16.79
21 t	Hexachlorobenzene	0.217	0.193	11.1	151	0.02	13.76
23 t	Phenanthrene	----- 1.118	----- 1.122	----- -0.4	----- 161	----- 0.00	----- 14.55
24 t	Anthracene	----- 0.997	----- 0.914	----- 8.3	----- 147	----- 0.00	----- 14.64
25 t	Fluoranthene	----- 1.307	----- 1.193	----- 8.7	----- 153	----- 0.00	----- 16.82
26 t	Pyrene	----- 1.174	----- 1.107	----- 5.7	----- 147	----- 0.02	----- 17.22
28 t	Benzo[a]anthracene	----- 1.000	----- 0.983	----- 1.7	----- 139	----- 0.00	----- 19.31
29 t	Chrysene	----- 1.088	----- 0.974	----- 10.5	----- 139	----- 0.02	----- 19.37
30 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	121	0.00	21.41
31 t	Benzo[b]fluoranthene	----- 1.000	----- 0.908	----- 9.2	----- 123	----- 0.00	----- 20.98
32 t	Benzo[k]fluoranthene	----- 1.217	----- 0.980	----- 19.5	----- 96	----- 0.00	----- 21.02
33 t	Benzo[a]pyrene	----- 1.371	----- 1.140	----- 16.8	----- 113	----- 0.02	----- 21.44
34 t	Indeno[1,2,3-cd]pyrene	----- 1.000	----- 0.774	----- 22.6	----- 88	----- 0.00	----- 22.92
35 t	Dibenz[a,h]anthracene	----- 1.000	----- 0.805	----- 19.5	----- 93	----- 0.02	----- 22.97

**Initial Calibration Verification**

Job Number: JC13356

Sample: E3M2780-ICV2780

Account:

CORNNYM Cornerstone Environmental Group, LLC

Lab FileID:

3M59545.D

Project:

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

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		AvgRF	CCRF	% Dev			
36 t	Benzol[g,h,i]perylene	1.067	0.928	13.0	97	0.00	23.29

---

(##) = Out of Range  
3m59536.D M3M2780SIM.MSPCC's out = 0 CCC's out = 0  
Wed Jan 27 12:00:25 2016 RPT16.7.2  
**6**

**Initial Calibration Verification**

Job Number: JC13356

Sample: E3M2780-ICV2780

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 3M59546.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3M2780\3m59546.D Vial: 12  
 Acq On : 26 Jan 2016 10:02 pm Operator: juliusj  
 Sample : icv2780-1 Inst : MS3M  
 Misc : op89601a,e3m2780 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Wed Jan 27 11:45:36 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
<hr/>						
1 I 1-Methylnaphthalene-d10	1.000	1.000	0.0	114	0.00	9.60
2 t 1,4-dioxane	0.280	0.267	4.6	121	0.00	2.15
11 t 1-Methylnaphthalene	1.362	1.319	3.2	110	0.02	9.68
12 Hexachlorocyclopentadiene	0.363	0.266	26.7	76	0.00	9.84
13 I Fluorene-d10	1.000	1.000	0.0	103	0.00	12.60
<hr/>						

(#) = Out of Range  
 3m59536.D M3M2780SIM.M

SPCC's out = 0 CCC's out = 0  
 Wed Jan 27 12:00:27 2016 RPT1

**Initial Calibration Verification**

Job Number: JC13356

Sample: E3M2780-ICV2780

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 3M59547.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\msdchem\1\DATA\E3M2780\3m59547.D Vial: 13  
 Acq On : 26 Jan 2016 10:34 pm Operator: juliusj  
 Sample : icv2780-1 Inst : MS3M  
 Misc : op89601a,e3m2780 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Wed Jan 27 11:45:36 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	181	0.00	9.60
5	Phenol	1.022	1.154	-12.9	201#	0.01	5.29
13 I	Fluorene-d10	1.000	1.000	0.0	178	0.00	12.60
17 t	4,6-dinitro-2-methylpheno	5.000	4.046	19.1	147	0.00	12.80
20 I	Fluoranthene-d10	1.000	1.000	0.0	166	0.02	16.81
22 t	Pentachlorophenol	5.000	5.112	-2.2	192	0.00	14.16

(#) = Out of Range  
 3m59536.D M3M2780SIM.M

SPCC's out = 0 CCC's out = 0  
 Wed Jan 27 12:00:29 2016 RPT1

# Continuing Calibration Summary

Page 1 of 2

Job Number: JC13356

Sample: E3M2785-CC2780

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 3M59613.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\E3M2785\3m59613.D Vial: 2  
 Acq On : 1 Feb 2016 10:35 am Operator: linseyk  
 Sample : cc2780-1 Inst : MS3M  
 Misc : op90825a,e3m2785 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Fri Jan 29 10:51:56 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	93	-0.02	9.58
2 t	1,4-dioxane	0.280	0.212	24.3#	78	-0.03	2.12
3 S	2-Fluorophenol	0.540	0.472	12.6	77	-0.14	3.90
4 S	Phenol-d5	0.887	0.793	10.6	78	0.01	5.27
5	Phenol	1.022	0.859	15.9	77	0.02	5.30
6 t	bis(2-Chloroethyl)ether	0.757	0.602	20.5#	76	-0.02	5.40
7 S	Nitrobenzene-d5	0.833	0.735	11.8	78	-0.03	6.74
8 t	Naphthalene	2.503	2.049	18.1	78	-0.03	8.11
9 t	Hexachlorobutadiene	0.388	0.318	18.0	78	-0.03	8.41
10 t	2-Methylnaphthalene	1.172	1.240	-5.8	95	-0.02	9.45
11 t	1-Methylnaphthalene	1.362	1.267	7.0	86	-0.02	9.64
12	Hexachlorocyclopentadiene	0.363	0.281	22.6#	66	-0.02	9.82
13 I	Fluorene-d10	1.000	1.000	0.0	77	-0.04	12.56
14 S	2-Fluorobiphenyl	1.315	1.159	11.9	75	-0.03	10.23
15 t	Acenaphthylene	1.297	1.687	-30.1#	88	-0.02	11.22
16 t	Acenaphthene	0.974	1.081	-11.0	82	-0.03	11.58
17 t	4,6-dinitro-2-methylpheno	5.000	5.358	True Calc.	% Drift	-----	-----
18 t	Fluorene	1.200	1.294	-7.8	85	-0.02	12.62
19 S	2,4,6-Tribromophenol	0.110	0.124	-12.7	81	0.00	13.12
20 I	Fluoranthene-d10	1.000	1.000	0.0	81	-0.02	16.78
21 t	Hexachlorobenzene	0.217	0.193	11.1	77	-0.02	13.73
22 t	Pentachlorophenol	5.000	4.038	True Calc.	% Drift	-----	-----
23 t	Phenanthrene	1.118	1.074	3.9	78	-0.03	14.52
24 t	Anthracene	0.997	1.059	-6.2	87	-0.02	14.63
25 t	Fluoranthene	1.307	1.233	5.7	80	-0.02	16.81
26 t	Pyrene	1.174	1.242	-5.8	84	-0.02	17.19
27 S	Terphenyl-d14	0.632	0.617	2.4	73	-0.02	17.58
28 t	Benzo[a]anthracene	1.000	1.255	True Calc.	% Drift	-----	-----
			AvgRF	CCRF	% Dev	-----	-----

# Continuing Calibration Summary

Page 2 of 2

Job Number: JC13356

Sample:

E3M2785-CC2780

Account:

CORNNYM Cornerstone Environmental Group, LLC

Lab FileID:

3M59613.D

Project:

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

29	t	Chrysene	1.088	1.128	-3.7	82	-0.02	19.34
30	I	Benzo(a)pyrene-d12	1.000	1.000	0.0	83	-0.02	21.39
31	t	----- Benzo[b]fluoranthene	True 1.000	Calc. 0.933	% Drift 6.7	87	-0.02	20.96
32	t	----- Benzo[k]fluoranthene	AvgRF 1.217	CCRF 1.304	% Dev -7.1	87	-0.02	21.01
33	t	----- Benzo[a]pyrene	1.371	1.281	6.6	87	-0.02	21.41
34	t	----- Indeno[1,2,3-cd]pyrene	True 1.000	Calc. 1.128	% Drift -12.8	89	-0.02	22.90
35	t	----- Dibenz[a,h]anthracene	1.000	1.056	-5.6	85	-0.02	22.93
36	t	----- Benzo[g,h,i]perylene	AvgRF 1.067	CCRF 1.273	% Dev -19.3	90	-0.02	23.27
----- -----								

( # ) = Out of Range

3m59536.D M3M2780SIM.M

SPCC's out = 0 CCC's out = 0

Tue Feb 02 12:09:41 2016 RPT1

6.7.5

6

**Initial Calibration Summary****Job Number:** JC13356**Sample:**

E4P767-ICC767

**Account:**

CORNNYM Cornerstone Environmental Group, LLC

**Lab FileID:**

4P14949.D

**Project:**

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Response Factor Report MS4P

Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M (RTE Integrator)

Title : Semi Volatile Extractables by GC/MS

Last Update : Tue Feb 02 08:55:09 2016

Response via : Initial Calibration

## Calibration Files

2.5 =4p14956.D 1.0 =4p14949.D 0.5 =4p14948.D 0.2 =4p14950.D

0.1 =4p14951.D 0.05=4p14952.D 0.02=4p14953.D 0.01=4p14954.D

5 =4p14955.D = = =

## Compound

	2.5	1.0	0.5	0.2	0.1	0.05	0.02	0.01	5	Avg	%RSD
--	-----	-----	-----	-----	-----	------	------	------	---	-----	------

1) I 1-Methylnaphthalene-d -----ISTD-----

2) 1,4-Dioxane

0.397 0.422 0.463 0.544 0.643	0.360	0.471	22.27
----- Quadratic regression ---- Coefficient = 1.0000			
Response Ratio = 0.00593 + 0.41624 *A + -0.04843 *A^2			

3) 2-Fluorophenol

0.672 0.703 0.715 0.834 0.725 0.652 0.706	0.612	0.702	9.27
---	-------	-------	------

4) Phenol-d5

1.198 1.206 1.215 1.355 1.068 0.979 0.970	1.064	1.132	11.78
---	-------	-------	-------

5) Phenol

1.364 1.425 1.422 1.544 1.318 1.119 1.111	1.436	1.342	11.52
---	-------	-------	-------

6) bis(2-Chloroethyl)ether

1.198 1.124 1.126 1.313 1.142 1.025 1.708 0.947 1.039	1.180	19.00
---	-------	-------

7) Nitrobenzene-d5

1.141 1.142 1.130 1.314 1.119 0.983 1.029	1.054	1.114	8.96
---	-------	-------	------

8) Naphthalene

2.563 2.595 2.484 3.016 2.730 2.488 2.840 2.669 2.394	2.642	7.40
---	-------	------

9) Hexachlorobutadiene

0.607 0.596 0.574 0.697 0.635 0.573 0.672 0.676 0.564	0.622	8.08
---	-------	------

10) 2-Methylnaphthalene

1.349 1.325 1.305 1.519 1.322 1.278 1.195 1.272 1.253	1.313	6.83
---	-------	------

11) 1-Methylnaphthalene

1.372 1.406 1.430 1.700 1.426 1.361 1.350 1.447 1.280	1.419	8.25
---	-------	------

12) Hexachlorocyclopentadiene

0.628 0.542 0.513 0.507 0.361	0.632	0.531	18.75
-------------------------------	-------	-------	-------

13) I Fluorene-d10 -----ISTD-----

14) 2-Fluorobiphenyl

1.019 1.031 1.213 1.477 1.087 1.066 1.079	1.139	14.22
---	-------	-------

15) Acenaphthylene

1.461 1.391 1.352 1.531 1.444 1.287	1.331	1.400	6.03
-------------------------------------	-------	-------	------

16) Acenaphthene

0.978 1.003 1.052 1.286 1.024 0.949 1.014 1.067 0.887	1.029	10.77
---	-------	-------

17) Dibenzofuran

1.237 1.210 1.483 1.637 1.331 1.306	1.094	1.328	13.65
-------------------------------------	-------	-------	-------

18) Fluorene

1.219 1.217 1.319 1.515 1.174 1.117	1.114	1.239	11.31
-------------------------------------	-------	-------	-------

19) 4,6-dinitro-2-methylphenol

0.124 0.095 0.098 0.086 0.053 0.042	0.142	0.091	39.08
-------------------------------------	-------	-------	-------

----- Quadratic regression ---- Coefficient = 0.9996			
--	--	--	--

Response Ratio = -0.00728 + 0.10435 *A + 0.00626 *A^2			
---	--	--	--

20) n-nitrosodiphenylamine

6.7.6  
6

**Initial Calibration Summary**

**Job Number:** JC13356      **Sample:** E4P767-ICC767  
**Account:** CORNNYM Cornerstone Environmental Group, LLC      **Lab FileID:** 4P14949.D  
**Project:** E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

21)	1,2-Diphenylhydrazine	0.625 0.592 0.655 0.724 0.572 0.520 1.390 1.316 1.185 1.360 1.169 0.981	0.545	0.605	11.53
22)	2,4,6-Tribromophenol	0.157 0.154 0.158 0.173 0.135 0.117	0.148	0.149	12.34
23)	Fluoranthene-d10	-----ISTD-----			
24)	Hexachlorobenzene	0.325 0.305 0.320 0.376 0.318 0.291 0.323 0.332 0.307	0.322	7.37	
25)	Pentachlorophenol	0.147 0.119 0.124 0.110 0.078 0.067 ---- Quadratic regression ---- Coefficient = 0.9991 Response Ratio = -0.01083 + 0.14227 *A + 0.00146 *A^2	0.149	0.113	27.93
26)	Phenanthrene	1.242 1.180 1.238 1.407 1.160 1.062 1.130 1.176 1.166	1.196	8.01	
27)	Anthracene	1.155 1.051 1.147 1.257 1.009 0.939 0.993 0.884 1.148	1.065	11.29	
28)	Fluoranthene	1.263 1.232 1.325 1.496 1.243 1.167	1.187	1.273	8.71
29)	Pyrene	1.275 1.231 1.333 1.433 1.246 1.120 1.257	1.243	1.267	7.05
30)	Terphenyl-d14	0.607 0.595 0.632 0.730 0.626 0.563 0.593 0.571 0.581	0.611	8.22	
31)	Benzo[a]anthracene	1.132 1.097 1.174 1.236 1.077 0.917	1.124	1.108	8.96
32)	Chrysene	1.286 1.285 1.315 1.507 1.324 1.207	1.246	1.310	7.31
33)	I Benzo(a)pyrene-d12	-----ISTD-----			
34)	Benzo[b]fluoranthene	1.610 1.601 1.669 2.013 1.672 1.337	1.689	1.656	11.97
35)	Benzo[k]fluoranthene	1.682 1.478 1.501 1.644 1.319 1.443	1.436	1.501	8.35
36)	Benzo[a]pyrene	1.527 1.486 1.576 1.904 1.639 1.898	1.429	1.637	11.73
37)	Indeno[1,2,3-cd]pyrene	1.714 1.655 1.720 2.018 1.706 1.645	1.613	1.725	7.87
38)	Dibenz[a,h]anthracene	1.425 1.365 1.430 1.660 1.405 1.312	1.358	1.422	7.94
39)	Benzo[g,h,i]perylene	1.520 1.462 1.514 1.819 1.559 1.514	1.413	1.543	8.46
-----					

(#) = Out of Range    ### Number of calibration levels exceeded format    ###

M4P767SIM.M      Tue Feb 02 09:03:27 2016

6.7.6  
6

# Initial Calibration Verification

Page 1 of 2

Job Number: JC13356

Sample: E4P767-ICV767

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 4P14957.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e4p767\4p14957.D Vial: 12  
Acq On : 1 Feb 2016 10:24 pm Operator: juliusj  
Sample : icv767-1.0 Inst : MS4P  
Misc : op90759a,e4p767 Multiplr: 1.00  
MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M (RTE Integrator)  
Title : Semi Volatile Extractables by GC/MS  
Last Update : Tue Feb 02 08:55:09 2016  
Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	97	0.00	8.75
6 t	bis(2-Chloroethyl)ether	1.180	1.334	-13.1	115	-0.02	4.65
8 t	Naphthalene	2.642	2.526	4.4	94	-0.02	7.27
9 t	Hexachlorobutadiene	0.622	0.617	0.8	100	0.00	7.57
10 t	2-Methylnaphthalene	1.313	1.247	5.0	91	0.00	8.62
13 I	Fluorene-d10	1.000	1.000	0.0	92	0.00	11.74
15 t	Acenaphthylene	1.400	1.421	-1.5	94	0.00	10.38
16 t	Acenaphthene	1.029	1.019	1.0	93	0.00	10.74
17	Dibenzofuran	1.328	1.289	2.9	98	0.00	11.11
18 t	Fluorene	1.239	1.176	5.1	89	0.00	11.79
20	n-nitrosodiphenylamine	0.605	0.590	2.5	92	0.00	12.08
21	1,2-Diphenylhydrazine	1.231	1.287	-4.5	90	0.00	12.13
23	Fluoranthene-d10	1.000	1.000	0.0	100	0.00	15.95
24 t	Hexachlorobenzene	0.322	0.301	6.5	99	0.00	12.90
26 t	Phenanthrene	1.196	1.203	-0.6	102	-0.02	13.69
27 t	Anthracene	1.065	0.948	11.0	91	-0.02	13.80
28 t	Fluoranthene	1.273	1.232	3.2	100	-0.02	15.97
29 t	Pyrene	1.267	1.163	8.2	95	-0.02	16.36
31 t	Benzo[a]anthracene	1.108	1.017	8.2	93	0.00	18.47
32 t	Chrysene	1.310	1.314	-0.3	103	0.00	18.52
33 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	92	0.00	20.57
34 t	Benzo[b]fluoranthene	1.656	1.410	14.9	81	0.00	20.13
35 t	Benzo[k]fluoranthene	1.501	1.567	-4.4	97	0.00	20.18
36 t	Benzo[a]pyrene	1.637	1.411	13.8	87	0.00	20.59
37 t	Indeno[1,2,3-cd]pyrene	1.725	1.573	8.8	87	0.00	22.13
38 t	Dibenz[a,h]anthracene	1.422	1.310	7.9	88	0.00	22.17
39 t	Benzo[g,h,i]perylene	1.543	1.460	5.4	92	0.00	22.52

( # ) = Out of Range

SPCC's out = 0 CCC's out = 0

## Initial Calibration Verification

Page 2 of 2

Job Number: JC13356

Sample: E4P767-ICV767

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 4P14957.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

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4p14949.D M4P767SIM.M

Tue Feb 02 09:03:11 2016

6.7.7

6

**Initial Calibration Verification**

Job Number: JC13356

Sample: E4P767-ICV767

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 4P14958.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e4p767\4p14958.D Vial: 13  
 Acq On : 1 Feb 2016 10:54 pm Operator: juliusj  
 Sample : icv767-1.0 Inst : MS4P  
 Misc : op90759a,e4p767 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Tue Feb 02 08:55:09 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I 1-Methylnaphthalene-d10	1.000	1.000	0.0	81	-0.02	8.73
2 t 1,4-Dioxane	-----	True	Calc.	% Drift	-----	-----
		1.000	0.940	6.0	77	0.00
11 t 1-Methylnaphthalene	-----	AvgRF	CCRF	% Dev	-----	-----
	1.419	1.289	9.2	74	-0.02	8.79

(#) = Out of Range  
 4p14949.D M4P767SIM.M

SPCC's out = 0 CCC's out = 0  
 Tue Feb 02 09:03:13 2016

**Initial Calibration Verification**

Job Number: JC13356

Sample:

E4P767-ICV767

Account:

CORNNYM Cornerstone Environmental Group, LLC

Lab FileID:

4P14959.D

Project:

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\msdchem\1\DATA\e4p767\4p14959.D Vial: 14  
 Acq On : 1 Feb 2016 11:24 pm Operator: juliusj  
 Sample : icv767-1.0 Inst : MS4P  
 Misc : op90759a,e4p767 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Tue Feb 02 08:55:09 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	129	-0.02	8.73
5	Phenol	-----	AvgRF	CCRF	% Dev	-----	-----
		1.342	1.347	-0.4	121	0.00	4.54
13 I	Fluorene-d10	1.000	1.000	0.0	99	0.00	11.74
19	4,6-dinitro-2-methylpheno	-----	True	Calc.	% Drift	-----	-----
		5.000	6.227	-24.5	141	-0.02	11.94
23	Fluoranthene-d10	-----	AvgRF	CCRF	% Dev	-----	-----
		1.000	1.000	0.0	121	0.00	15.95
25 t	Pentachlorophenol	-----	True	Calc.	% Drift	-----	-----
		5.000	5.339	-6.8	148	-0.02	13.32

(#) = Out of Range  
 4p14949.D M4P767SIM.M

SPCC's out = 0 CCC's out = 0  
 Tue Feb 02 09:03:15 2016

# Continuing Calibration Summary

Page 1 of 2

Job Number: JC13356

Sample: E4P768-CC767

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 4P14961.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Evaluate Continuing Calibration Report

Data File : C:\msdchem\1\DATA\e4p768\4p14961.D Vial: 2  
 Acq On : 2 Feb 2016 9:10 am Operator: ashleyd  
 Sample : cc767-1.0 Inst : MS4P  
 Misc : op90759a,e4p768 Multiplr: 1.00  
 MS Integration Params: lscint.p

Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Tue Feb 02 08:55:09 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 50% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1-Methylnaphthalene-d10	1.000	1.000	0.0	86	-0.02	8.73
2 t	----- 1,4-Dioxane	----- True 1.000	----- Calc. 0.949	----- % Drift 5.1	----- 84	----- -0.01	1.92
3 S	2-Fluorophenol	0.702	0.680	3.1	84	-0.01	3.30
4 S	Phenol-d5	1.132	1.098	3.0	79	-0.02	4.51
5	Phenol	1.342	1.319	1.7	80	-0.02	4.53
6 t	bis(2-Chloroethyl)ether	1.180	1.065	9.7	82	-0.02	4.65
7 S	Nitrobenzene-d5	1.114	1.036	7.0	78	-0.03	5.94
8 t	Naphthalene	2.642	2.428	8.1	81	-0.03	7.27
9 t	Hexachlorobutadiene	0.622	0.566	9.0	82	-0.01	7.56
10 t	2-Methylnaphthalene	1.313	1.259	4.1	82	-0.02	8.60
11 t	1-Methylnaphthalene	1.419	1.367	3.7	84	-0.02	8.79
12	Hexachlorocyclopentadiene	0.531	0.470	11.5	75	-0.02	8.96
13 I	Fluorene-d10	1.000	1.000	0.0	73	-0.02	11.72
14 S	2-Fluorobiphenyl	1.139	1.210	-6.2	86	-0.02	9.38
15 t	Acenaphthylene	1.400	1.261	9.9	67	-0.02	10.36
16 t	Acenaphthene	1.029	1.050	-2.0	77	-0.02	10.72
17	Dibenzofuran	1.328	1.455	-9.6	88	-0.02	11.09
18 t	Fluorene	1.239	1.321	-6.6	80	-0.02	11.77
19	----- 4,6-dinitro-2-methylpheno	----- True 5.000	----- Calc. 4.031	----- % Drift 19.4	----- 64	----- -0.02	11.94
20	n-nitrosodiphenylamine	0.605	0.691	-14.2	86	0.00	12.09
21	1,2-Diphenylhydrazine	1.231	1.301	-5.7	73	0.00	12.14
22 S	2,4,6-Tribromophenol	0.149	0.156	-4.7	75	0.00	12.28
23	Fluoranthene-d10	1.000	1.000	0.0	80	-0.02	15.93
24 t	Hexachlorobenzene	0.322	0.317	1.6	83	-0.02	12.88
25 t	----- Pentachlorophenol	----- True 5.000	----- Calc. 3.592	----- % Drift 28.2#	----- 63	----- -0.02	13.32
26 t	Phenanthrene	1.196	1.190	0.5	80	-0.03	13.68
27 t	Anthracene	1.065	0.974	8.5	74	-0.03	13.78
28 t	Fluoranthene	1.273	1.213	4.7	78	-0.02	15.97

6.7.10  
6

# Continuing Calibration Summary

Page 2 of 2

Job Number: JC13356

Sample: E4P768-CC767

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: 4P14961.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

29 t	Pyrene	1.267	1.191	6.0	77	-0.02	16.36
30 S	Terphenyl-d14	0.611	0.626	-2.5	84	-0.02	16.74
31 t	Benzo[a]anthracene	1.108	1.052	5.1	76	-0.02	18.46
32 t	Chrysene	1.310	1.276	2.6	79	-0.02	18.51
33 I	Benzo(a)pyrene-d12	1.000	1.000	0.0	77	0.00	20.56
34 t	Benzo[b]fluoranthene	1.656	1.546	6.6	75	-0.02	20.12
35 t	Benzo[k]fluoranthene	1.501	1.615	-7.6	85	-0.02	20.17
36 t	Benzo[a]pyrene	1.637	1.483	9.4	77	-0.02	20.58
37 t	Indeno[1,2,3-cd]pyrene	1.725	1.638	5.0	77	-0.02	22.11
38 t	Dibenz[a,h]anthracene	1.422	1.345	5.4	76	-0.02	22.15
39 t	Benzo[g,h,i]perylene	1.543	1.475	4.4	78	-0.02	22.51

(#) = Out of Range  
4P14949.D M4P767SIM.M

SPCC's out = 0 CCC's out = 0  
Tue Feb 02 11:44:01 2016

6.7.10

**Initial Calibration Summary**

Job Number: JC13356

Sample: EP4411-ICC4411

Account:

CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: P100857.D

Project:

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Response Factor Report MSP

Method : C:\MSDCHEM\1\METHODS\MP4411.M ( RTE Integrator )

Title : Semi Volatile Extractables by GC/MS

Last Update : Mon Dec 07 14:16:59 2015

Response via : Initial Calibration

## Calibration Files

2	=P100872A.D	5	=P100871A.D	25	=P100869A.D	80	=P100867A.D
100	=P100866A.D	50	=P100868A.D	10	=P100870A.D	1	=P100873A.D

Compound	2	5	25	80	100	50	10	1	Avg	%RSD
<hr/>										
1) I 1,4-Dichlorobenzene-d					-----ISTD-----					
2) 1,4-Dioxane	0.960	1.095	0.960	0.899	0.929	0.947	0.902	0.986	0.960	6.48
3) Pyridine	2.398	2.907	2.468	2.142	2.135	2.319	2.373	2.591	2.417	10.38
4) N-Nitrosodim	0.848	0.916	0.778	0.653	0.644	0.715	0.737	0.896	0.773	13.55
5) 2-Fluorophen	1.684	1.985	1.811	1.778	1.779	1.826	1.669	1.660	1.774	6.05
6) Indene	2.902	3.439	3.177	2.688	2.547	3.087	2.888	2.836	2.945	9.60
7) Cumene	4.005	4.769	4.266	3.592	3.438	4.064	3.974	4.172	4.035	10.12
8) Phenol-d5	2.432	3.009	2.645	2.432	2.415	2.610	2.439	2.451	2.554	7.99
9) Phenol	2.561	3.008	2.629	2.479	2.400	2.712	2.483	2.537	2.601	7.31
10) Aniline	3.147	3.614	2.700	2.097		2.349	2.852	3.274	2.862	18.55
11) bis(2-Chloro	1.909	2.274	1.937	1.723	1.709	1.857	1.831	2.024	1.908	9.52
12) 2-Chlorophen	1.593	1.866	1.592	1.514	1.500	1.573	1.497	1.537	1.584	7.60
13) Decane	2.307	2.515	2.007	1.510	1.424	1.790	2.020	2.230	1.975	19.37
14) 1,3-Dichloro	1.612	1.820	1.674	1.637	1.627	1.667	1.519	1.540	1.637	5.64
15) 1,4-Dichloro	1.511	1.760	1.635	1.609	1.586	1.672	1.471	1.536	1.597	5.84
16) Benzyl alcoh	1.024	1.289	1.200	1.187	1.158	1.224	1.093	0.915	1.136	10.60
17) 1,2-Dichloro	1.448	1.726	1.562	1.475	1.447	1.546	1.428	1.444	1.509	6.66
18) Acetophenone	2.278	2.731	2.462	2.181	2.114	2.357	2.279	2.340	2.343	8.09
19) 2-Methylphen	1.575	1.878	1.688	1.404	1.348	1.599	1.595	1.564	1.581	10.30
20) 2,2'-oxybis(	0.484	0.574	0.489	0.468	0.467	0.475	0.474	0.521	0.494	7.43
21) 3&4-Methylph	1.699	2.036	1.813	1.602	1.544	1.761	1.683	1.618	1.720	9.00
22) n-Nitroso-di	1.452	1.689	1.377	1.073	1.020	1.248	1.371	1.478	1.338	16.40
23) Hexachloroet	0.433	0.505	0.450	0.479	0.488	0.473	0.417	0.413	0.457	7.44
24) I Naphthalene-d8					-----ISTD-----					
25) Nitrobenzene	0.505	0.565	0.470	0.428	0.419	0.446	0.458	0.486	0.472	9.95
26) Nitrobenzene	0.509	0.584	0.476	0.421	0.406	0.450	0.468	0.522	0.480	12.11
27) Quinoline	0.740	0.903	0.779	0.771	0.769	0.780	0.737	0.778	0.782	6.63
28) Isophorone	0.918	1.081	0.912	0.807	0.778	0.860	0.885	0.918	0.895	10.23
29) 2-Nitropheno	0.194	0.240	0.214	0.226	0.225	0.218	0.194	0.184	0.212	9.05
30) 2,4-Dimethyl	0.330	0.386	0.340	0.355	0.349	0.353	0.305	0.346	0.346	6.67
31) Benzoic acid	0.188	0.311	0.314	0.319	0.316	0.314	0.269		0.290	16.60
32) bis(2-Chloro	0.593	0.678	0.580	0.534	0.519	0.561	0.559	0.614	0.580	8.66
33) 2,4-Dichloro	0.253	0.319	0.287	0.299	0.297	0.292	0.263	0.237	0.281	9.76
34) 2,6-Dichloro	0.251	0.295	0.270	0.290	0.288	0.283	0.246	0.255	0.272	7.15
35) 1,3,5-Trichl	0.293	0.357	0.318	0.322	0.314	0.322	0.291	0.304	0.315	6.60
36) 1,2,4-Trichl	0.288	0.344	0.316	0.318	0.314	0.285	0.301	0.310		6.15
37) 1,2,3-Trichl	0.280	0.338	0.314	0.289	0.274	0.315	0.283	0.260	0.294	8.76
38) Naphthalene	1.214	1.432	1.270	1.140	1.081	1.220	1.176	1.226	1.220	8.48
39) 4-Chloroanil	0.479	0.570	0.491	0.457	0.445	0.476	0.464	0.474	0.482	7.92
40) 2,3-Dichloro	0.338	0.397	0.362	0.374	0.372	0.369	0.333	0.331	0.360	6.49
41) Caprolactam	0.225	0.276	0.227	0.210	0.205	0.219	0.219	0.239	0.227	9.78
42) Hexachlorobu	0.116	0.145	0.136	0.138	0.134	0.141	0.117	0.117	0.130	9.08
43) 4-Chloro-3-m	0.340	0.415	0.371	0.357	0.351	0.368	0.350	0.354	0.363	6.38
44) 2-Methylnaph	0.564	0.683	0.615	0.586	0.562	0.607	0.568	0.554	0.592	7.22
45) 1-Methylnaph	0.675	0.826	0.740	0.714	0.685	0.727	0.685	0.670	0.715	7.22

**Initial Calibration Summary**

Job Number: JC13356

Sample: EP4411-ICC4411

Account: CORNNYM Cornerstone Environmental Group, LLC  
Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Lab FileID: P100857.D

46)	Dimethylnaph	0.549	0.659	0.605	0.591	0.569	0.611	0.560	0.569	0.589	6.03
47)	I Acenaphthene-d10							-----ISTD-----			
48)	Hexachlorocyclo	0.222	0.288	0.305	0.314	0.305	0.319	0.250	0.211	0.277	15.55
49)	2,4,6-Trichloro	0.326	0.386	0.353	0.375	0.378	0.356	0.314	0.295	0.348	9.46
50)	2,4,5-Trichloro	0.320	0.410	0.368	0.388	0.395	0.371	0.336	0.321	0.364	9.48
51)	2-Fluorobiphenyl	1.141	1.350	1.221	1.221	1.217	1.218	1.122	1.124	1.202	6.22
52)	2-Chloronaphthalene	1.097	1.339	1.194	1.057	1.011	1.149	1.088	1.122	1.132	8.88
53)	Biphenyl	1.511	1.757	1.631	1.382	1.298	1.562	1.455	1.463	1.507	9.55
54)	2-Nitroaniline	0.441	0.541	0.453	0.418	0.416	0.431	0.432	0.447	0.447	8.94
55)	Dimethylphthalate	1.193	1.397	1.258	1.276	1.275	1.240	1.138	1.220	1.249	6.03
56)	Acenaphthylene	2.106	2.506	2.237	2.062	1.987	2.147	2.067	2.138	2.156	7.39
57)	2,6-Dinitrotoluene	0.231	0.303	0.274	0.298	0.300	0.281	0.252	0.230	0.271	11.15
58)	3-Nitroaniline	0.327	0.448	0.389	0.410	0.416	0.393	0.359	0.325	0.383	11.37
59)	Acenaphthene	1.185	1.434	1.320	1.260	1.222	1.310	1.178	1.198	1.263	6.93
60)	2,4-Dinitrotoluene	0.062	0.130	0.171	0.216	0.224	0.191	0.128		0.161	35.81
								----- Quadratic regression -----	Coefficient =		0.9997
								Response Ratio = -0.01532 + 0.17012 *A + 0.01169 *A^2			
61)	4-Nitrophenoxy	0.120	0.153	0.143	0.139	0.141	0.138	0.134	0.091	0.132	14.40
62)	Dibenzofuran	1.418	1.763	1.600	1.558	1.506	1.584	1.439	1.431	1.537	7.52
63)	2,4-Dinitrotoluene	0.305	0.399	0.386	0.381	0.381	0.374	0.340	0.288	0.357	11.56
64)	2,3,4,6-Tetrahydrophthalic anhydride	0.209	0.268	0.264	0.308	0.316	0.280	0.229	0.206	0.260	16.21
65)	Diethylphthalate	1.197	1.468	1.312	1.284	1.267	1.287	1.184	1.191	1.274	7.28
66)	Fluorene	1.319	1.644	1.517	1.451	1.406	1.492	1.343	1.332	1.438	7.76
67)	4-Chlorophenol	0.501	0.615	0.537	0.562	0.561	0.541	0.494	0.484	0.537	8.11
68)	4-Nitroaniline	0.319	0.426	0.371	0.371	0.373	0.360	0.352	0.326	0.362	9.02
69)	I Phenanthrene-d10							-----ISTD-----			
70)	4,6-Dinitrophenol	0.114	0.122	0.147	0.152	0.135	0.108		0.130		13.90
71)	n-Nitrosodiphenylamine	0.527	0.643	0.576	0.611	0.604	0.580	0.541	0.555	0.580	6.66
72)	1,2-Diphenylhydrazine	1.179	1.381	1.094	0.925	0.890	0.994	1.119	1.218	1.100	14.79
73)	2,4,6-Trihydroxyphenol	0.058	0.072	0.072	0.088	0.093	0.075	0.063		0.074	16.84
74)	4-Bromophenol	0.156	0.195	0.182	0.213	0.217	0.191	0.162	0.166	0.185	12.37
75)	Hexachlorobutadiene	0.165	0.197	0.180	0.205	0.209	0.190	0.167	0.169	0.185	9.41
76)	Pentachlorophenol	0.077	0.114	0.125	0.145	0.144	0.140	0.100		0.121	21.02
								----- Quadratic regression -----	Coefficient =		0.9994
								Response Ratio = -0.01178 + 0.13940 *A + 0.00161 *A^2			
77)	Phenanthrene	1.144	1.406	1.271	1.212	1.182	1.244	1.174	1.221	1.232	6.59
78)	Anthracene	1.203	1.450	1.304	1.244	1.211	1.270	1.186	1.231	1.262	6.72
79)	Carbazole	1.006	1.214	1.084	1.109	1.097	1.093	1.013	1.030	1.081	6.24
80)	Di-n-butylphthalate	1.319	1.655	1.492	1.456	1.421	1.470	1.388	1.353	1.444	7.17
81)	Fluoranthene	1.128	1.413	1.342	1.353	1.310	1.335	1.204	1.140	1.278	8.32
82)	Octadecane	0.806	0.949	0.760	0.587	0.567	0.676	0.766	0.814	0.740	17.07
83)	I Chrysene-d12							-----ISTD-----			
84)	Pyrene	1.478	1.744	1.540	1.600	1.595	1.517	1.421	1.499	1.549	6.35
85)	Terphenyl-d1	0.742	0.841	0.734	0.881	0.889	0.777	0.685	0.812	0.795	9.25
86)	Butylbenzylphthalate	0.662	0.805	0.716	0.793	0.798	0.721	0.669	0.662	0.728	8.59
87)	Butyl stearate	0.616	0.744	0.615	0.542	0.531	0.560	0.610	0.607	0.603	11.07
88)	Benzo[a]anthracene	1.301	1.495	1.341	1.357	1.342	1.309	1.253	1.406	1.350	5.45
89)	3,3'-Dichlorobiphenyl	0.453	0.536	0.480	0.449	0.436	0.452	0.455	0.424	0.461	7.46
90)	Chrysene	1.064	1.251	1.123	1.272	1.270	1.158	1.027	1.072	1.154	8.59
91)	bis(2-Ethylhexyl)phthalate	0.872	1.051	0.943	1.045	1.050	0.948	0.869	0.868	0.956	8.71
92)	I Perylene-d12							-----ISTD-----			
93)	Di-n-octylphthalate	1.791	2.192	2.168	2.158	2.126	2.191	1.908	1.738	2.034	9.37
94)	Benzo[b]fluoranthene	1.188	1.489	1.577	1.614	1.642	1.636	1.297	1.159	1.450	14.10
95)	Benzo[k]fluoranthene	1.092	1.379	1.321	1.373	1.334	1.400	1.145	1.133	1.272	9.95

67.11

**Initial Calibration Summary****Job Number:** JC13356**Sample:** EP4411-ICC4411**Account:** CORNNYM Cornerstone Environmental Group, LLC**Lab FileID:** P100857.D**Project:** E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

96) Benzo[a]pyre	1.029	1.258	1.256	1.379	1.388	1.345	1.088	1.033	1.222	12.39
97) Indeno[1,2,3	0.907	1.053	1.075	1.273	1.321	1.180	0.907	0.910	1.078	15.46
98) Dibenz(a,h)a	0.690	0.852	0.843	0.995	1.006	0.929	0.710	0.698	0.840	15.52
99) Dibenz[a,h]a	0.899	1.080	1.113	1.302	1.307	1.234	0.935	0.870	1.093	16.31
100) 7,12-Dimethy		0.481	0.583	0.630	0.623	0.645	0.438		0.567	15.23
101) Benzo[g,h,i]	0.934	1.117	1.103	1.255	1.278	1.196	0.943	0.932	1.095	13.17

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 (#) = Out of Range   ### Number of calibration levels exceeded format   ###

MP4411.M

Mon Dec 07 16:33:13 2015

6.7.11  
6

**Initial Calibration Verification**

Job Number: JC13356

Sample: EP4412-ICV4411

Account: CORNNYM Cornerstone Environmental Group, LLC  
Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Lab FileID: P100874.D

**Evaluate Continuing Calibration Report**

Data File : C:\MSDCHEM\1\DATA\EP4412\P100874.D Vial: 10  
 Acq On : 7 Dec 2015 1:12 pm Operator: linseyk  
 Sample : icv4411-50 Inst : MSP  
 Misc : op89240, ep4412 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Dec 07 15:38:33 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.	
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	0.00	4.44
4 t	N-Nitrosodimethylamine	0.773	0.580	25.0	106	0.00	2.02
11 t	bis(2-Chloroethyl)ether	1.908	1.791	6.1	126	-0.01	4.10
14 t	1,3-Dichlorobenzene	1.637	1.580	3.5	124	0.00	4.37
15 t	1,4-Dichlorobenzene	1.597	1.491	6.6	116	0.00	4.46
17 t	1,2-Dichlorobenzene	1.509	1.465	2.9	124	-0.01	4.65
20 t	2,2'-oxybis(1-Chloropropylamin	0.494	0.450	8.9	124	-0.01	4.80
22	n-Nitroso-di-n-propylamin	1.338	1.157	13.5	121	-0.02	4.97
23 t	Hexachloroethane	0.457	0.424	7.2	117	0.00	5.11
24 I	Naphthalene-d8	1.000	1.000	0.0	120	0.00	6.20
26 t	Nitrobenzene	0.480	0.427	11.0	114	-0.01	5.19
28 t	Isophorone	0.895	0.826	7.7	116	-0.01	5.53
32 t	bis(2-Chloroethoxy)methan	0.580	0.551	5.0	118	0.00	5.87
36 t	1,2,4-Trichlorobenzene	0.310	0.303	2.3	115	-0.01	6.12
38 t	Naphthalene	1.220	1.013	17.0	100	0.00	6.23
42 t	Hexachlorobutadiene	0.130	0.128	1.5	109	0.00	6.45
47 I	Acenaphthene-d10	1.000	1.000	0.0	114	-0.01	8.92
48 t	Hexachlorocyclopentadiene	0.277	0.292	-5.4	104	-0.01	7.56
52 t	2-Chloronaphthalene	1.132	1.130	0.2	112	-0.01	8.04
55 t	Dimethylphthalate	1.249	1.134	9.2	104	-0.01	8.56
56 t	Acenaphthylene	2.156	1.649	23.5	88	0.00	8.69
57 t	2,6-Dinitrotoluene	0.271	0.253	6.6	102	-0.01	8.63
59 t	Acenaphthene	1.263	1.140	9.7	99	0.00	8.97
63 t	2,4-Dinitrotoluene	0.357	0.318	10.9	97	-0.01	9.26
65 t	Diethylphthalate	1.274	1.196	6.1	106	-0.01	9.69
66 t	Fluorene	1.438	1.238	13.9	95	-0.01	9.80
67 t	4-Chlorophenyl-phenylethe	0.537	0.492	8.4	104	-0.01	9.83
69 I	Phenanthrene-d10	1.000	1.000	0.0	110	-0.02	11.28
71 t	n-Nitrosodiphenylamine	0.580	0.506	12.8	96	-0.02	10.02
72 t	1,2-Diphenylhydrazine	1.100	0.994	9.6	110	-0.01	10.08
74 t	4-Bromophenyl-phenylether	0.185	0.182	1.6	105	-0.01	10.60
75 t	Hexachlorobenzene	0.185	0.177	4.3	103	-0.01	10.68
77 t	Phenanthrene	1.232	1.081	12.3	96	-0.01	11.32
78 t	Anthracene	1.262	1.078	14.6	94	-0.01	11.40
80 t	Di-n-butylphthalate	1.444	1.314	9.0	99	-0.01	12.39
81 t	Fluoranthene	1.278	1.089	14.8	90	-0.02	13.35
83 I	Chrysene-d12	1.000	1.000	0.0	98	-0.02	16.01
84 t	Pyrene	1.549	1.306	15.7	85	-0.01	13.74

**Initial Calibration Verification**

Job Number: JC13356

Sample: EP4412-ICV4411

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: P100874.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

86 t	Butylbenzylphthalate	0.728	0.679	6.7	93	-0.01	15.10
88 t	Benzo[a]anthracene	1.350	1.133	16.1	85	-0.01	16.00
89 t	3,3'-Dichlorobenzidine	0.461	0.375	18.6	82	0.00	16.02
90 t	Chrysene	1.154	0.981	15.0	83	-0.02	16.06
91 t	bis(2-Ethylhexyl)phthalat	0.956	0.905	5.3	94	-0.01	16.27
<hr/>							
92 I	Perylene-d12	1.000	1.000	0.0	94	-0.02	18.57
93 t	Di-n-octylphthalate	2.034	2.122	-4.3	91	-0.01	17.47
94 t	Benzo[b]fluoranthene	1.450	1.270	12.4	73	-0.02	17.94
95 t	Benzo[k]fluoranthene	1.272	1.214	4.6	81	-0.02	17.99
96 t	Benzo[a]pyrene	1.222	1.184	3.1	83	-0.02	18.48
97 t	Indeno[1,2,3-cd]pyrene	1.078	0.976	9.5	78	-0.02	20.20
99 t	Dibenz[a,h]anthracene	1.093	1.019	6.8	78	-0.02	20.25
101 t	Benzo[g,h,i]perylene	1.095	0.956	12.7	75	-0.02	20.59

( # ) = Out of Range  
P100868A.D MP4411.MSPCC's out = 0 CCC's out = 0  
Mon Dec 07 15:41:14 20156.7.12  
6

**Initial Calibration Verification**

Job Number: JC13356

Sample: EP4412-ICV4411

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: P100875.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\MSDCHEM\1\DATA\EP4412\P100875.D Vial: 11  
 Acq On : 7 Dec 2015 1:42 pm Operator: linseyk  
 Sample : icv4411-50 Inst : MSP  
 Misc : op89240, ep4412 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Dec 07 15:38:33 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	131	-0.01
2 t	1,4-Dioxane	0.960	0.878	8.5	122	0.01
6 t	Indene	2.945	2.821	4.2	120	0.00
7 t	Cumene	4.035	3.712	8.0	120	0.00
13 t	Decane	1.975	1.656	16.2	122	0.00
18 t	Acetophenone	2.343	2.133	9.0	119	-0.02
24 I	Naphthalene-d8	1.000	1.000	0.0	129	-0.01
26 t	Nitrobenzene	0.480	0.431	10.2	124	-0.24
27 t	Quinoline	0.782	0.736	5.9	121	-0.02
40 t	2,3-Dichloroaniline	0.360	0.285	20.8	99	0.00
41 t	Caprolactam	0.227	0.184	18.9	108	-0.05
45 t	1-Methylnaphthalene	0.715	0.677	5.3	120	0.00
46 t	Dimethylnaphthalene	0.589	0.561	4.8	118	-0.01
47 I	Acenaphthene-d10	1.000	1.000	0.0	119	-0.01
53 t	Biphenyl	1.507	1.505	0.1	114	-0.01
69 I	Phenanthrene-d10	1.000	1.000	0.0	111	-0.02
82 t	Octadecane	0.740	0.676	8.6	111	-0.01
92 I	Perylene-d12	1.000	1.000	0.0	100	-0.02
100 t	7,12-Dimethylbenz(a)anthr	0.567	0.582	-2.6	91	-0.03

(#) = Out of Range  
 P100868A.D MP4411.M

SPCC's out = 0 CCC's out = 0  
 Mon Dec 07 15:41:15 2015

**Initial Calibration Verification**

Job Number: JC13356

Sample: EP4412-ICV4411

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: P100876.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\MSDCHEM\1\DATA\EP4412\P100876.D Vial: 12  
 Acq On : 7 Dec 2015 2:11 pm Operator: linseyk  
 Sample : icv4411-50 Inst : MSP  
 Misc : op89240, ep4412 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Dec 07 15:38:33 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	138	-0.01
9 t	Phenol	2.601	2.348	9.7	119	-0.01
12 t	2-Chlorophenol	1.584	1.509	4.7	132	-0.01
19 t	2-Methylphenol	1.581	1.528	3.4	132	-0.01
21 t	3&4-Methylphenol	1.720	1.583	8.0	124	-0.01
24 I	Naphthalene-d8	1.000	1.000	0.0	128	0.00
29 t	2-Nitrophenol	0.212	0.200	5.7	117	-0.01
30 t	2,4-Dimethylphenol	0.346	0.375	-8.4	135	-0.01
31 t	Benzoic acid	0.290	0.236	18.6	96	-0.02
33 t	2,4-Dichlorophenol	0.281	0.271	3.6	118	-0.01
34	2,6-Dichlorophenol	0.272	0.270	0.7	121	-0.01
43 t	4-Chloro-3-methylphenol	0.363	0.333	8.3	116	-0.02
47 I	Acenaphthene-d10	1.000	1.000	0.0	127	-0.01
49 t	2,4,6-Trichlorophenol	0.348	0.333	4.3	119	-0.01
60 t	2,4-Dinitrophenol	100.000	73.628	26.3	80	-0.02
61 t	4-Nitrophenol	0.132	0.116	12.1	107	-0.02
69 I	Phenanthrene-d10	1.000	1.000	0.0	119	-0.02
70 t	4,6-Dinitro-2-methylpheno	0.130	0.107	17.7	94	-0.02
76 t	Pentachlorophenol	100.000	86.198	13.8	96	-0.02

(#) = Out of Range  
 P100868.A.D MP4411.M

SPCC's out = 0 CCC's out = 0  
 Mon Dec 07 15:41:16 2015

**Initial Calibration Verification**

Job Number: JC13356

Sample:

EP4412-ICV4411

Account:

CORNNYM Cornerstone Environmental Group, LLC

Lab FileID:

P100877.D

Project:

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\MSDCHEM\1\DATA\EP4412\P100877.D Vial: 13  
 Acq On : 7 Dec 2015 2:41 pm Operator: linseyk  
 Sample : icv4411-50 Inst : MSP  
 Misc : op89240, ep4412 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Dec 07 15:38:33 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)	R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	179	-0.01	4.43
5 S	2-Fluorophenol	1.774	1.585	10.7	156	0.00	3.01
8 S	Phenol-d5	2.554	2.019	20.9	139	-0.01	3.98
24 I	Naphthalene-d8	1.000	1.000	0.0	166	-0.01	6.19
25 S	Nitrobenzene-d5	0.472	0.408	13.6	152	-0.01	5.16
47 I	Acenaphthene-d10	1.000	1.000	0.0	161	-0.01	8.92
51 S	2-Fluorobiphenyl	1.202	1.154	4.0	153	-0.01	7.88
69 I	Phenanthrene-d10	1.000	1.000	0.0	152	-0.02	11.28
73 S	2,4,6-Tribromophenol	0.074	0.061	17.6	125	-0.02	10.18
83 I	Chrysene-d12	1.000	1.000	0.0	138	-0.02	16.01
85 S	Terphenyl-d14	0.795	0.760	4.4	135	-0.01	14.11

(#) = Out of Range  
 P100868A.D MP4411.M

SPCC's out = 0 CCC's out = 0  
 Mon Dec 07 15:41:17 2015

6.7.15  
6

**Initial Calibration Verification**

Job Number: JC13356

Sample:

EP4412-ICV4411

Account:

CORNNYM Cornerstone Environmental Group, LLC

Lab FileID:

P100878.D

Project:

E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

**Evaluate Continuing Calibration Report**

Data File : C:\MSDCHEM\1\DATA\EP4412\P100878.D Vial: 14  
 Acq On : 7 Dec 2015 3:11 pm Operator: linseyk  
 Sample : icv4411-50 Inst : MSP  
 Misc : op89240, ep4412 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Dec 07 15:38:33 2015  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 30% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	123	0.00
3 t	Pyridine	2.417	2.600	-7.6	138	0.08
10 t	Aniline	2.862	3.145	-9.9	165	0.00
16 t	Benzyl alcohol	1.136	1.242	-9.3	125	0.00
24 I	Naphthalene-d8	1.000	1.000	0.0	126	-0.01
39 t	4-Chloroaniline	0.482	0.455	5.6	121	-0.01
44 t	2-Methylnaphthalene	0.592	0.580	2.0	120	-0.01
47 I	Acenaphthene-d10	1.000	1.000	0.0	117	-0.01
54 t	2-Nitroaniline	0.447	0.444	0.7	120	-0.02
58 t	3-Nitroaniline	0.383	0.394	-2.9	117	-0.01
62 t	Dibenzofuran	1.537	1.577	-2.6	116	-0.02
68 t	4-Nitroaniline	0.362	0.382	-5.5	124	-0.02
69 I	Phenanthrene-d10	1.000	1.000	0.0	120	-0.02
79 t	Carbazole	1.081	1.086	-0.5	119	-0.01

(#) = Out of Range  
 P100868A.D MP4411.M

SPCC's out = 0 CCC's out = 0  
 Mon Dec 07 15:41:18 2015

6.7.16

6

# Continuing Calibration Summary

Page 1 of 3

Job Number: JC13356

Sample: EP4488-CC4411

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: P102306.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

## Evaluate Continuing Calibration Report

Data File : C:\MSDCHEM\1\DATA\EP4488\P102306.D Vial: 2  
 Acq On : 2 Feb 2016 8:55 am Operator: linseyk  
 Sample : cc4411-50 Inst : MSP  
 Misc : op90824, ep4488 Multiplr: 1.00  
 MS Integration Params: rteint.p

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Feb 01 15:23:59 2016  
 Response via : Multiple Level Calibration

Min. RRF : 0.050 Min. Rel. Area : 48% Max. R.T. Dev 0.50min  
 Max. RRF Dev : 20% Max. Rel. Area : 200%

	Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)R.T.
1 I	1,4-Dichlorobenzene-d4	1.000	1.000	0.0	77	0.03
2 t	1,4-Dioxane	0.960	0.895	6.8	73	0.02
3 t	Pyridine	2.417	2.187	9.5	72	0.03
4 t	N-Nitrosodimethylamine	0.773	0.862	-11.5	93	0.02
5 S	2-Fluorophenol	1.774	1.597	10.0	67	0.02
6 t	Indene	2.945	2.955	-0.3	73	0.04
7 t	Cumene	4.035	3.994	1.0	75	0.02
8 S	Phenol-d5	2.554	2.261	11.5	66	-0.01
9 t	Phenol	2.601	2.442	6.1	69	0.02
10 t	Aniline	2.862	2.188	23.5#	72	0.03
11 t	bis(2-Chloroethyl)ether	1.908	1.686	11.6	70	0.05
12 t	2-Chlorophenol	1.584	1.556	1.8	76	0.04
13 t	Decane	1.975	1.760	10.9	75	0.02
14 t	1,3-Dichlorobenzene	1.637	1.619	1.1	75	0.03
15 t	1,4-Dichlorobenzene	1.597	1.603	-0.4	74	0.03
16 t	Benzyl alcohol	1.136	1.135	0.1	71	0.06
17 t	1,2-Dichlorobenzene	1.509	1.506	0.2	75	0.04
18 t	Acetophenone	2.343	2.393	-2.1	78	0.06
19 t	2-Methylphenol	1.581	1.509	4.6	72	0.04
20 t	2,2'-oxybis(1-Chloropropane)	0.494	0.510	-3.2	82	0.05
21 t	3&4-Methylphenol	1.720	1.668	3.0	73	0.00
22	n-Nitroso-di-n-propylamin	1.338	1.383	-3.4	85	0.05
23 t	Hexachloroethane	0.457	0.555	-21.4#	90	0.05
24 I	Naphthalene-d8	1.000	1.000	0.0	76	0.04
25 S	Nitrobenzene-d5	0.472	0.520	-10.2	89	0.04
26 t	Nitrobenzene	0.480	0.498	-3.8	84	0.03
27 t	Quinoline	0.782	0.751	4.0	73	0.05
28 t	Isophorone	0.895	0.884	1.2	78	0.04
29 t	2-Nitrophenol	0.212	0.221	-4.2	77	0.05
30 t	2,4-Dimethylphenol	0.346	0.378	-9.2	82	0.05
31 t	Benzoic acid	0.290	0.314	-8.3	76	0.03
32 t	bis(2-Chloroethoxy)methane	0.580	0.531	8.4	72	0.04
33 t	2,4-Dichlorophenol	0.281	0.316	-12.5	83	0.02
34	2,6-Dichlorophenol	0.272	0.306	-12.5	82	-0.12
35	1,3,5-Trichlorobenzene	0.315	0.352	-11.7	84	-0.13
36 t	1,2,4-Trichlorobenzene	0.310	0.322	-3.9	77	0.05
37	1,2,3-Trichlorobenzene	0.294	0.313	-6.5	76	-0.13
38 t	Naphthalene	1.220	1.071	12.2	67	0.04
39 t	4-Chloroaniline	0.482	0.431	10.6	69	0.03
40 t	2,3-Dichloroaniline	0.360	0.381	-5.8	79	0.08
41 t	Caprolactam	0.227	0.219	3.5	76	0.05

6.7.17  
6

# Continuing Calibration Summary

Page 2 of 3

Job Number: JC13356

Sample: EP4488-CC4411

Account: CORNNYM Cornerstone Environmental Group, LLC  
Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

Lab FileID: P102306.D

42 t	Hexachlorobutadiene	0.130	0.173	-33.1#	93	-0.14	6.25
43 t	4-Chloro-3-methylphenol	0.363	0.365	-0.6	76	0.05	6.98
44 t	2-Methylnaphthalene	0.592	0.594	-0.3	75	0.03	7.09
45 t	1-Methylnaphthalene	0.715	0.729	-2.0	76	0.06	7.24
46 t	Dimethylnaphthalene	0.589	0.617	-4.8	77	0.06	8.08
47 I	Acenaphthene-d10	1.000	1.000	0.0	79	0.04	8.72
48 t	Hexachlorocyclopentadiene	0.277	0.325	-17.3	81	-0.15	7.35
49 t	2,4,6-Trichlorophenol	0.348	0.371	-6.6	82	0.03	7.58
50 t	2,4,5-Trichlorophenol	0.364	0.378	-3.8	81	-0.06	7.65
51 S	2-Fluorobiphenyl	1.202	1.200	0.2	78	-0.14	7.69
52 t	2-Chloronaphthalene	1.132	1.195	-5.6	82	0.06	7.85
53 t	Biphenyl	1.507	1.511	-0.3	77	0.00	7.84
54 t	2-Nitroaniline	0.447	0.465	-4.0	85	-0.01	8.05
55 t	Dimethylphthalate	1.249	1.315	-5.3	84	0.04	8.37
56 t	Acenaphthylene	2.156	1.770	17.9	65	0.05	8.49
57 t	2,6-Dinitrotoluene	0.271	0.283	-4.4	80	0.05	8.45
58 t	3-Nitroaniline	0.383	0.354	7.6	71	-0.10	8.71
59 t	Acenaphthene	1.263	1.137	10.0	69	-0.13	8.77
-----		True	Calc.	% Drift	-----		
60 t	2,4-Dinitrophenol	100.000	72.496	27.5#	55	0.05	8.89
-----		AvgRF	CCRF	% Dev	-----		
61 t	4-Nitrophenol	0.132	0.186	-40.9#	107	0.01	9.11
62 t	Dibenzofuran	1.537	1.563	-1.7	78	0.07	9.05
63 t	2,4-Dinitrotoluene	0.357	0.380	-6.4	80	0.08	9.09
64 t	2,3,4,6-Tetrachlorophenol	0.260	0.265	-1.9	75	-0.11	9.29
65 t	Diethylphthalate	1.274	1.316	-3.3	81	0.04	9.50
66 t	Fluorene	1.438	1.290	10.3	68	0.05	9.60
67 t	4-Chlorophenyl-phenylether	0.537	0.557	-3.7	81	-0.12	9.63
68 t	4-Nitroaniline	0.362	0.324	10.5	71	0.05	9.69
69 I	Phenanthrene-d10	1.000	1.000	0.0	74	0.04	11.08
70 t	4,6-Dinitro-2-methylpheno	0.130	0.131	-0.8	72	0.05	9.75
71 t	n-Nitrosodiphenylamine	0.580	0.592	-2.1	76	0.03	9.83
72 t	1,2-Diphenylhydrazine	1.100	1.182	-7.5	88	0.05	9.88
73 S	2,4,6-Tribromophenol	0.074	0.093	-25.7#	93	0.04	9.99
74 t	4-Bromophenyl-phenylether	0.185	0.201	-8.6	78	0.03	10.40
75 t	Hexachlorobenzene	0.185	0.210	-13.5	82	0.04	10.49
-----		True	Calc.	% Drift	-----		
76 t	Pentachlorophenol	100.000	82.141	17.9	60	0.06	10.83
-----		AvgRF	CCRF	% Dev	-----		
77 t	Phenanthrene	1.232	1.168	5.2	70	0.05	11.12
78 t	Anthracene	1.262	1.184	6.2	69	0.05	11.20
79 t	Carbazole	1.081	1.192	-10.3	81	0.07	11.51
80 t	Di-n-butylphthalate	1.444	1.585	-9.8	80	0.06	12.17
81 t	Fluoranthene	1.278	1.279	-0.1	71	0.05	13.13
82 t	Octadecane	0.740	0.653	11.8	72	0.04	11.06
83 I	Chrysene-d12	1.000	1.000	0.0	85	-0.04	15.78
84 t	Pyrene	1.549	1.314	15.2	73	0.05	13.52
85 S	Terphenyl-d14	0.795	0.761	4.3	83	0.04	13.88
86 t	Butylbenzylphthalate	0.728	0.682	6.3	80	0.05	14.86
87	Butyl stearate	0.603	0.488	19.1	74	0.05	15.08
88 t	Benzo[a]anthracene	1.350	1.147	15.0	74	0.16	15.76
89 t	3,3'-Dichlorobenzidine	0.461	0.443	3.9	83	0.08	15.79
90 t	Chrysene	1.154	1.090	5.5	80	-0.02	15.83

6.7.17  
6

**Continuing Calibration Summary**

Job Number: JC13356

Sample: EP4488-CC4411

Account: CORNNYM Cornerstone Environmental Group, LLC

Lab FileID: P102306.D

Project: E203361 Ford Ringwood, Peters Mine Road, Ringwood, NJ

91 t	bis(2-Ethylhexyl)phthalat	0.956	0.981	-2.6	88	0.02	16.03
92 I	Perylene-d12	1.000	1.000	0.0	98	0.07	18.34
93 t	Di-n-octylphthalate	2.034	1.900	6.6	85	0.08	17.23
94 t	Benzo[b]fluoranthene	1.450	1.369	5.6	82	0.07	17.72
95 t	Benzo[k]fluoranthene	1.272	1.197	5.9	84	0.00	17.77
96 t	Benzo[a]pyrene	1.222	1.139	6.8	83	0.06	18.25
97 t	Indeno[1,2,3-cd]pyrene	1.078	1.131	-4.9	94	0.10	19.98
98 t	Dibenz(a,h)acridine	0.840	1.015	-20.8#	107	0.09	19.66
99 t	Dibenz[a,h]anthracene	1.093	1.162	-6.3	92	0.09	20.02
100 t	7,12-Dimethylbenz(a)anthr	0.567	0.616	-8.6	93	0.05	17.72
101 t	Benzo[g,h,i]perylene	1.095	1.207	-10.2	99	0.09	20.35

(#) = Out of Range  
P100868A.D MP4411.M

SPCC's out = 0 CCC's out = 0  
Tue Feb 02 11:41:58 2016

6.7.17

6



GC/MS Semi-volatiles

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Raw Data

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7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e4p768\  
 Data File : 4p14974.D  
 Acq On : 2 Feb 2016 2:46 pm  
 Operator : ashleyd  
 Sample : jc13356-1  
 Misc : op90850a,e4p768,950  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 03 15:41:39 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Feb 02 08:55:09 2016  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1-Methylnaphthalene-d10	8.727	150	111947	4.00	ppm	-0.02
13) Fluorene-d10	11.712	176	128480	4.00	ppm	-0.03
23) Fluoranthene-d10	15.931	212	228283	4.00	ppm	-0.02
33) Benzo(a)pyrene-d12	20.553	264	171078	4.00	ppm	-0.01
<hr/>						
System Monitoring Compounds						
3) 2-Fluorophenol	3.317	112	342334	17.41	ppm	0.00
Spiked Amount 50.000			Recovery	=	34.82%	
4) Phenol-d5	4.510	99	362272	11.44	ppm	-0.02
Spiked Amount 50.000			Recovery	=	22.88%	
7) Nitrobenzene-d5	5.947	82	906659	29.09	ppm	-0.02
Spiked Amount 50.000			Recovery	=	58.18%	
14) 2-Fluorobiphenyl	9.378	172	1344395	36.76	ppm	-0.02
Spiked Amount 50.000			Recovery	=	73.52%	
22) 2,4,6-Tribromophenol	12.271	330	230291	48.18	ppm	0.00
Spiked Amount 50.000			Recovery	=	96.36%	
30) Terphenyl-d14	16.740	244	1232332	35.35	ppm	-0.02
Spiked Amount 50.000			Recovery	=	70.70%	

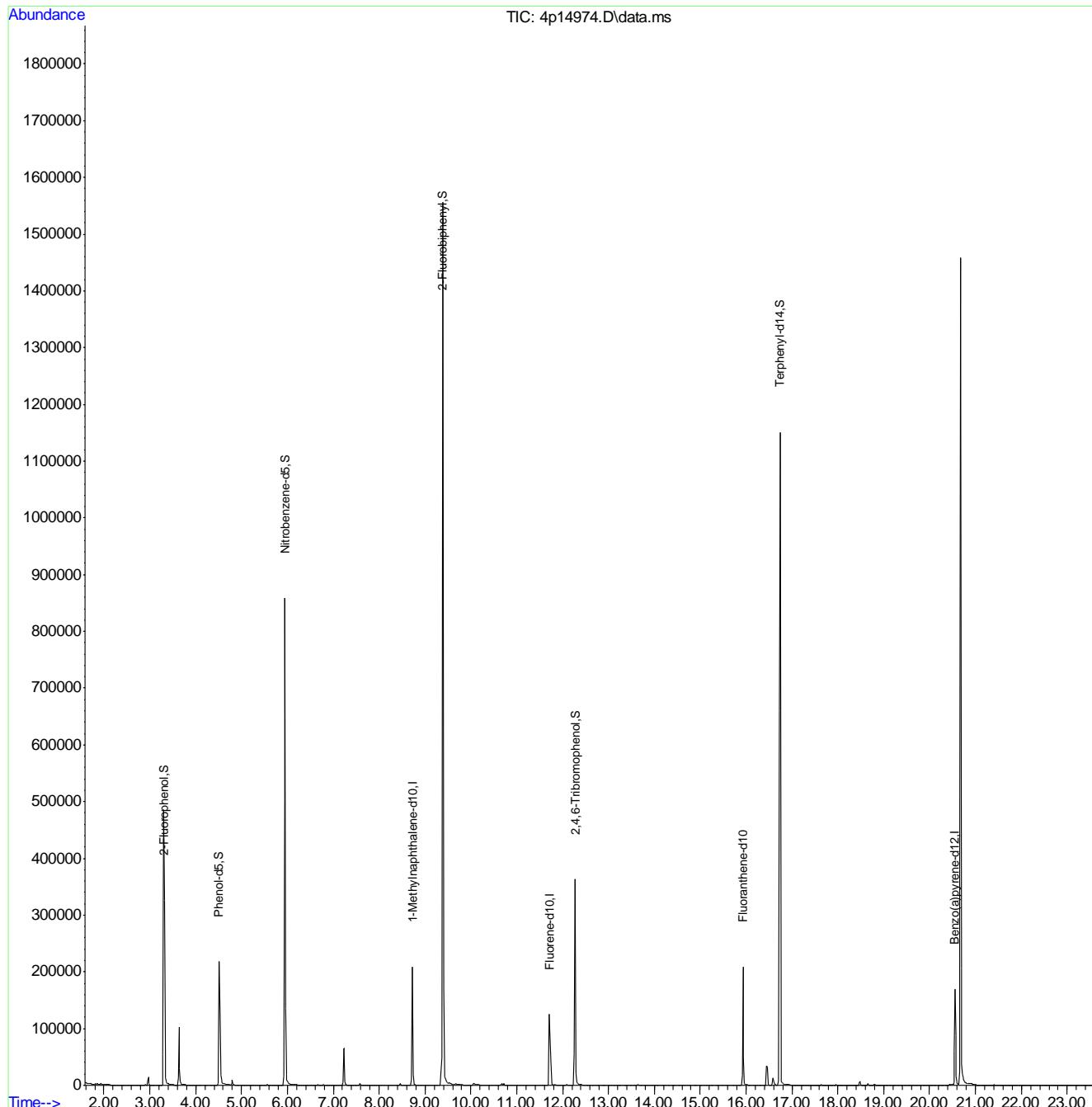
Target Compounds	Qvalue
<hr/>	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e4p768\  
 Data File : 4p14974.D  
 Acq On : 2 Feb 2016 2:46 pm  
 Operator : ashleyd  
 Sample : jc13356-1  
 Misc : op90850a,e4p768,950  
 ALS Vial : 15 Sample Multiplier: 1

Quant Time: Feb 03 15:41:39 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Feb 02 08:55:09 2016  
 Response via : Initial Calibration



## Quantitation Report (QT Reviewed)

Manual Integrations  
APPROVED  
(compounds with "m" flag)

Nina Pandya  
02/04/16 15:38

Data Path : C:\msdchem\1\DATA\e4p768\  
Data File : 4p14975.D  
Acq On : 2 Feb 2016 3:17 pm  
Operator : ashleyd  
Sample : jc13356-2  
Misc : op90850a,e4p768,1000  
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 03 15:42:42 2016  
Quant Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M  
Quant Title : Semi Volatile Extractables by GC/MS  
QLast Update : Tue Feb 02 08:55:09 2016  
Response via : Initial Calibration

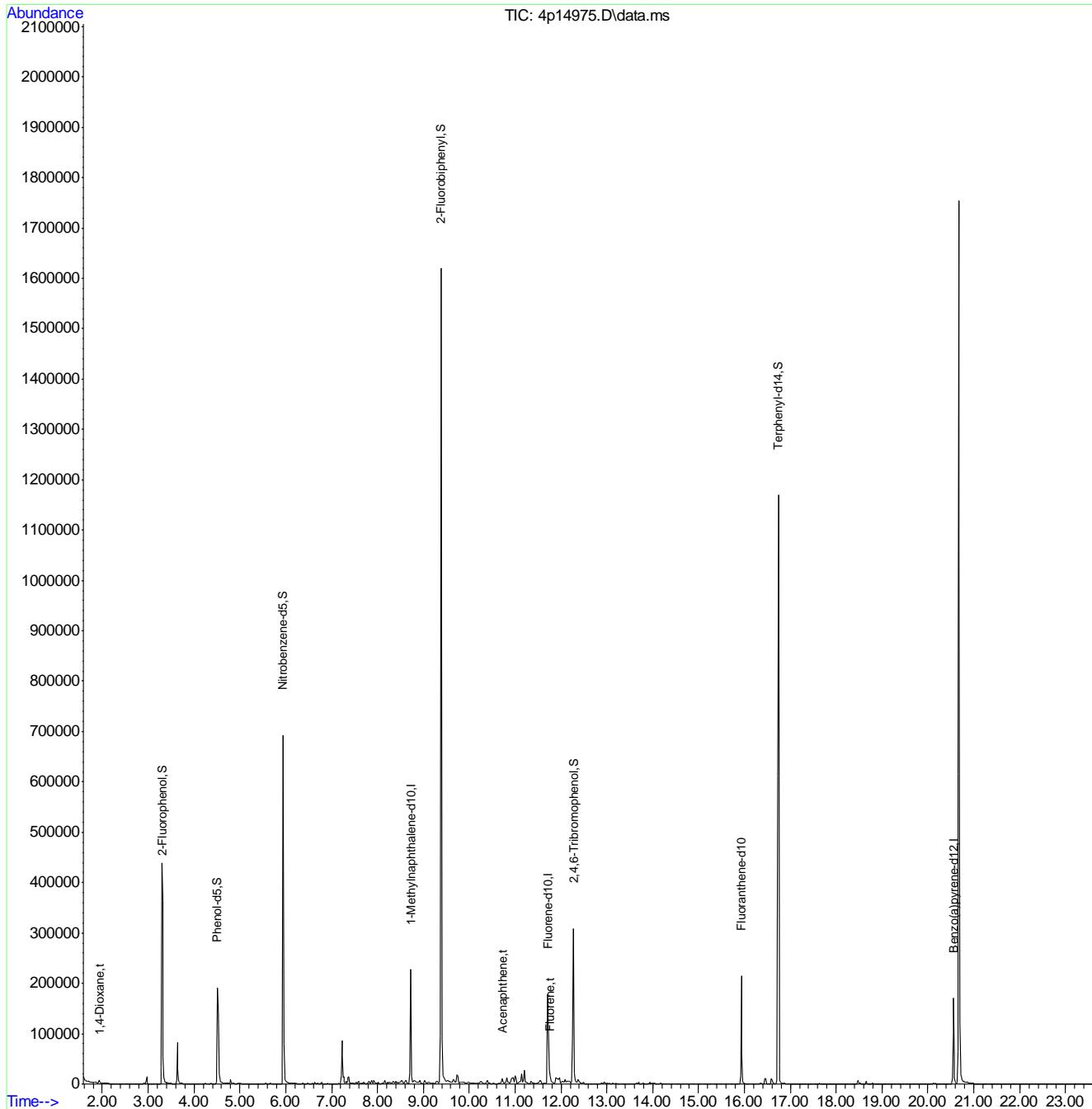
Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1-Methylnaphthalene-d10	8.731	150	121419	4.00	ppm	-0.02
13) Fluorene-d10	11.716	176	161507	4.00	ppm	-0.02
23) Fluoranthene-d10	15.931	212	240753	4.00	ppm	-0.02
33) Benzo(a)pyrene-d12	20.557	264	175214	4.00	ppm	0.00
<hr/>						
System Monitoring Compounds						
3) 2-Fluorophenol	3.317	112	332811	15.61	ppm	0.00
Spiked Amount 50.000			Recovery	=	31.22%	
4) Phenol-d5	4.510	99	346531	10.09	ppm	-0.02
Spiked Amount 50.000			Recovery	=	20.18%	
7) Nitrobenzene-d5	5.938	82	887657	26.26	ppm	-0.03
Spiked Amount 50.000			Recovery	=	52.52%	
14) 2-Fluorobiphenyl	9.382	172	1379397	30.00	ppm	-0.02
Spiked Amount 50.000			Recovery	=	60.00%	
22) 2,4,6-Tribromophenol	12.275	330	214486	35.70	ppm	0.00
Spiked Amount 50.000			Recovery	=	71.40%	
30) Terphenyl-d14	16.740	244	1215242	33.06	ppm	-0.02
Spiked Amount 50.000			Recovery	=	66.12%	
<hr/>						
Target Compounds						
2) 1,4-Dioxane	1.936	88	5884	0.41	ppm	# 62
16) Acenaphthene	10.723	153	7264m	0.17	ppm	
18) Fluorene	11.765	166	8590	0.17	ppm	77
<hr/>						

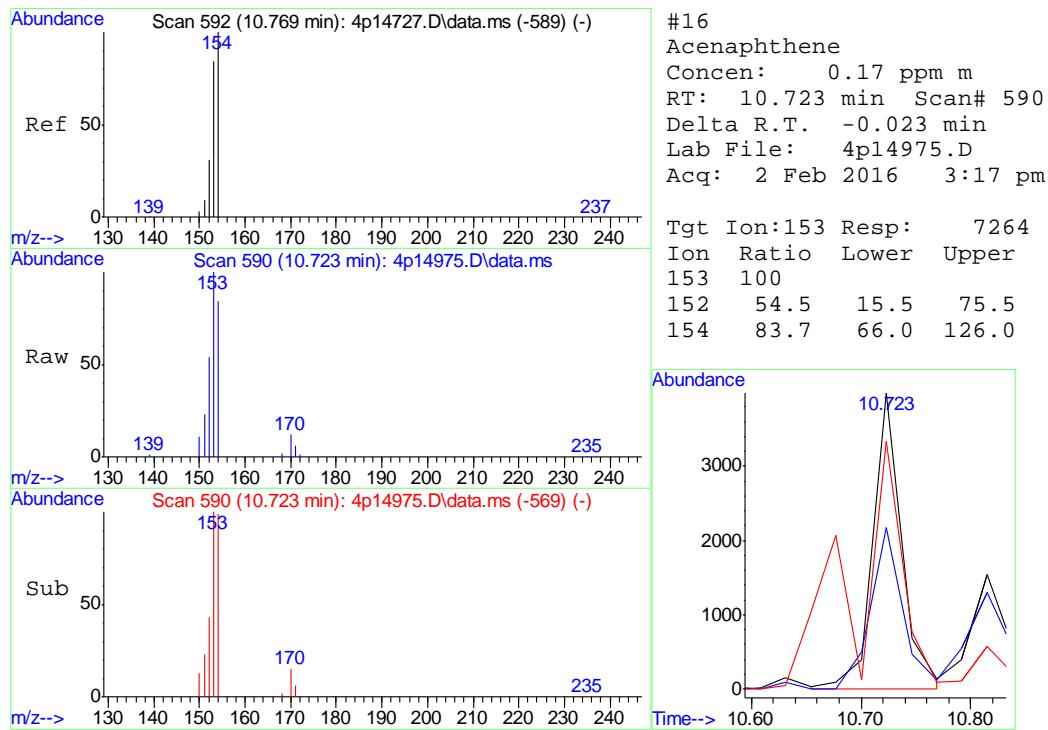
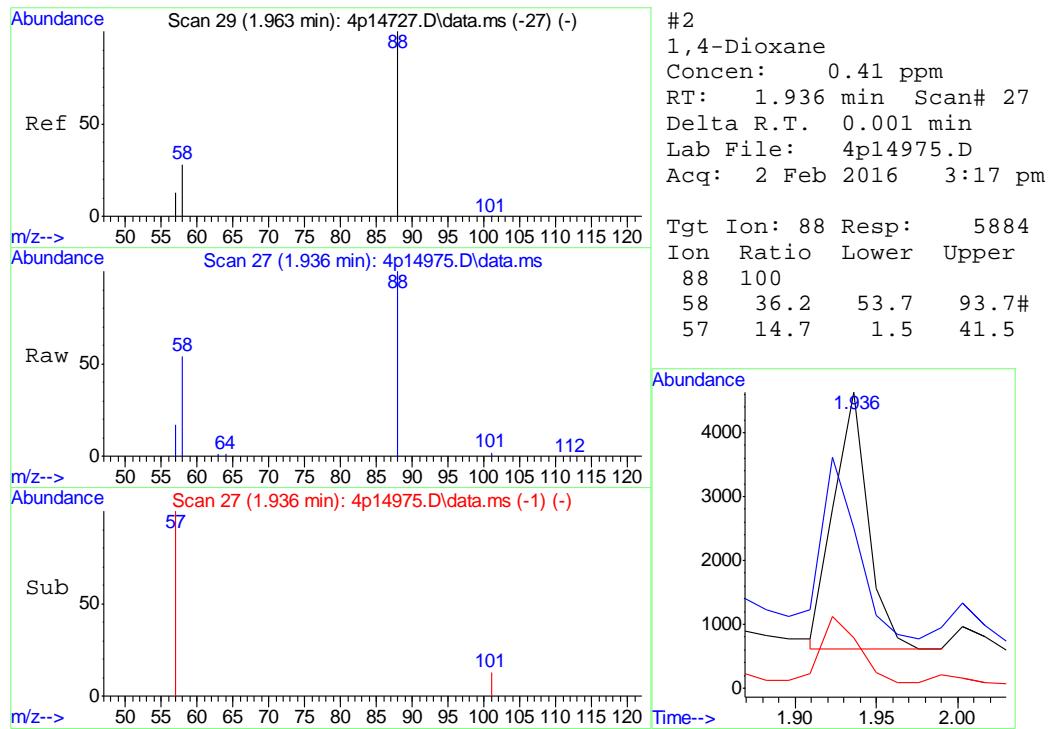
(#) = qualifier out of range (m) = manual integration (+) = signals summed

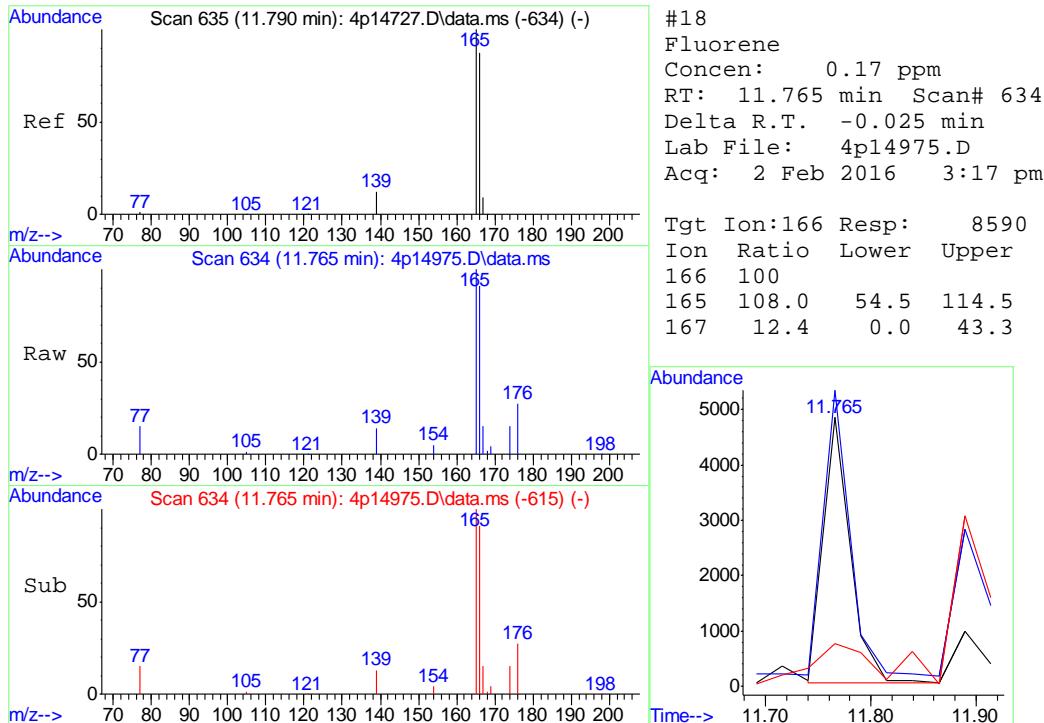
## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e4p768\  
 Data File : 4p14975.D  
 Acq On : 2 Feb 2016 3:17 pm  
 Operator : ashleyd  
 Sample : jc13356-2  
 Misc : op90850a,e4p768,1000  
 ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 03 15:42:42 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Feb 02 08:55:09 2016  
 Response via : Initial Calibration





7.1.2  
7

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2785\  
 Data File : 3m59619.D  
 Acq On : 1 Feb 2016 2:53 pm  
 Operator : linseyk  
 Sample : op90850a-mb1  
 Misc : op90850a,e3m2785,1000  
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 01 19:49:12 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Fri Jan 29 10:51:56 2016  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1-Methylnaphthalene-d10	9.578	150	532693	4.00	ppm	-0.02
13) Fluorene-d10	12.559	176	660167	4.00	ppm	-0.04
20) Fluoranthene-d10	16.775	212	1017766	4.00	ppm	-0.02
30) Benzo(a)pyrene-d12	21.395	264	821744	4.00	ppm	-0.02
<hr/>						
System Monitoring Compounds						
3) 2-Fluorophenol	3.896	112	2115101	29.43	ppm	-0.14
Spiked Amount 50.000			Recovery	=	58.86%	
4) Phenol-d5	5.287	99	2221106	18.81	ppm	0.02
Spiked Amount 50.000			Recovery	=	37.62%	
7) Nitrobenzene-d5	6.757	82	4685621	42.22	ppm	-0.01
Spiked Amount 50.000			Recovery	=	84.44%	
14) 2-Fluorobiphenyl	10.251	172	8803570	40.56	ppm	-0.02
Spiked Amount 50.000			Recovery	=	81.12%	
19) 2,4,6-Tribromophenol	13.124	330	937922	51.54	ppm	0.00
Spiked Amount 50.000			Recovery	=	103.08%	
27) Terphenyl-d14	17.594	244	7998410	49.76	ppm	0.00
Spiked Amount 50.000			Recovery	=	99.52%	

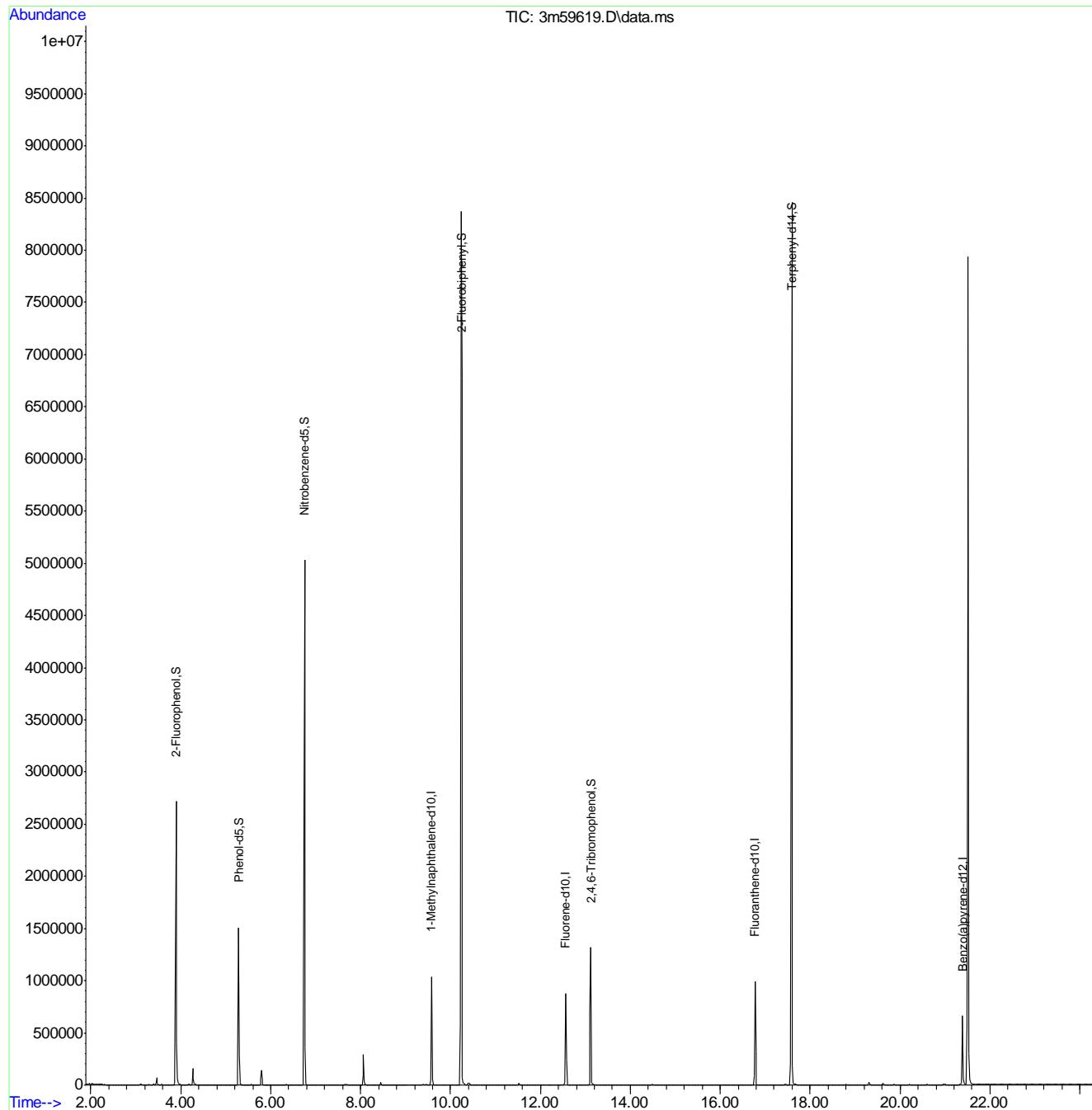
Target Compounds	Qvalue
<hr/>	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\E3M2785\  
 Data File : 3m59619.D  
 Acq On : 1 Feb 2016 2:53 pm  
 Operator : linseyk  
 Sample : op90850a-mb1  
 Misc : op90850a,e3m2785,1000  
 ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 01 19:49:12 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M3M2780SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Fri Jan 29 10:51:56 2016  
 Response via : Initial Calibration



## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e4p768\  
 Data File : 4p14973a.D  
 Acq On : 2 Feb 2016 2:16 pm  
 Operator : ashleyd  
 Sample : op90850a-mb1  
 Misc : op90850a,e4p768,1000  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 03 15:41:05 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Feb 02 08:55:09 2016  
 Response via : Initial Calibration

Compound	R.T.	QIon	Response	Conc	Units	Dev(Min)
<hr/>						
Internal Standards						
1) 1-Methylnaphthalene-d10	8.731	150	124228	4.00	ppm	-0.02
13) Fluorene-d10	11.716	176	150190	4.00	ppm	-0.02
23) Fluoranthene-d10	15.931	212	248380	4.00	ppm	-0.02
33) Benzo(a)pyrene-d12	20.557	264	191766	4.00	ppm	0.00
<hr/>						
System Monitoring Compounds						
3) 2-Fluorophenol	3.317	112	601071	27.55	ppm	0.00
Spiked Amount 50.000			Recovery	=	55.10%	
4) Phenol-d5	4.527	99	647813	18.43	ppm	0.00
Spiked Amount 50.000			Recovery	=	36.86%	
7) Nitrobenzene-d5	5.951	82	1449973	41.92	ppm	-0.01
Spiked Amount 50.000			Recovery	=	83.84%	
14) 2-Fluorobiphenyl	9.382	172	2025400	47.37	ppm	-0.02
Spiked Amount 50.000			Recovery	=	94.74%	
22) 2,4,6-Tribromophenol	12.275	330	355140	63.56	ppm	0.00
Spiked Amount 50.000			Recovery	=	127.12%	
30) Terphenyl-d14	16.740	244	1946970	51.34	ppm	-0.02
Spiked Amount 50.000			Recovery	=	102.68%	

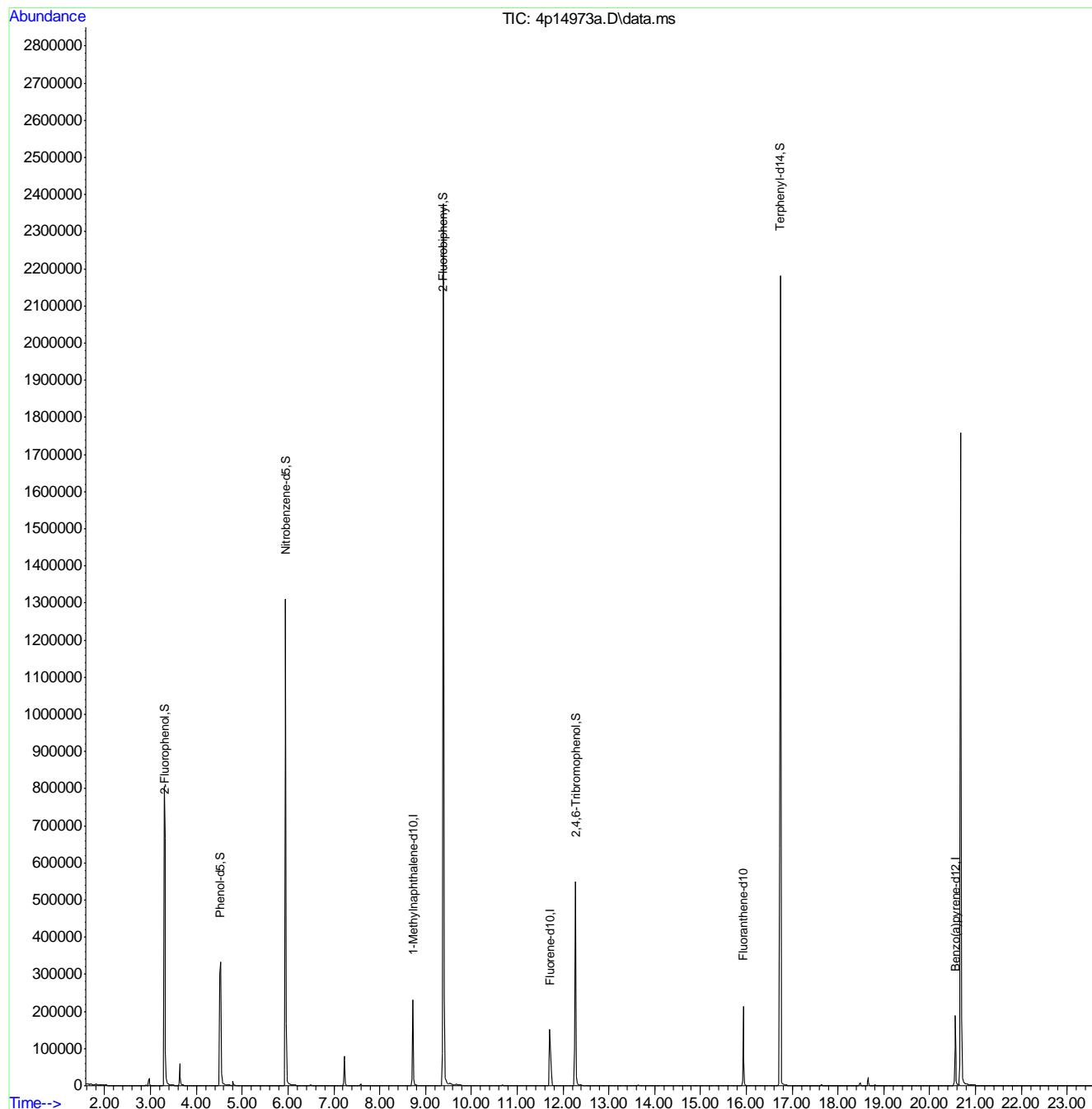
Target Compounds	Qvalue
<hr/>	

(#) = qualifier out of range (m) = manual integration (+) = signals summed

## Quantitation Report (QT Reviewed)

Data Path : C:\msdchem\1\DATA\e4p768\  
 Data File : 4p14973a.D  
 Acq On : 2 Feb 2016 2:16 pm  
 Operator : ashleyd  
 Sample : op90850a-mb1  
 Misc : op90850a,e4p768,1000  
 ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 03 15:41:05 2016  
 Quant Method : C:\MSDCHEM\1\METHODS\M4P767SIM.M  
 Quant Title : Semi Volatile Extractables by GC/MS  
 QLast Update : Tue Feb 02 08:55:09 2016  
 Response via : Initial Calibration



## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\EP4488\P102315.D Vial: 11  
 Acq On : 2 Feb 2016 1:19 pm Operator: linseyk  
 Sample : op90850a-mbl Inst : MSP  
 Misc : op90850a,ep4488,1000 Multiplr: 1.00  
 MS Integration Params: rteint.p  
 Quant Time: Feb 02 13:41:48 2016 Quant Results File: MP4411.RES

Quant Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Mon Feb 01 15:23:59 2016  
 Response via : Initial Calibration  
 DataAcq Meth : MP4411

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) 1,4-Dichlorobenzene-d4	4.26	152	70743	40.00	ppm	0.03
24) Naphthalene-d8	6.00	136	273755	40.00	ppm	0.03
47) Acenaphthene-d10	8.72	164	146527	40.00	ppm	0.04
69) Phenanthrene-d10	11.07	188	222937	40.00	ppm	0.04
83) Chrysene-d12	15.77	240	195592	40.00	ppm	-0.06
92) Perylene-d12	18.33	264	180897	40.00	ppm	0.06
102) 1,4-Dichlorobenzene-d4b	4.26	152	70743	40.00	ppm	0.03
104) Phenanthrene-d10b	11.07	188	222937	40.00	ppm	0.04
106) Chrysene-d12b	15.77	240	195592	40.00	ppm	0.05
108) Naphthalene-d8b	6.00	136	273755	40.00	ppm	0.03
110) Acenaphthene-d10b	8.72	164	146527	40.00	ppm	0.04

## System Monitoring Compounds

5) 2-Fluorophenol	2.88	112	80527	25.67	ppm	0.01
Spiked Amount	50.000			Recovery	=	51.34%
8) Phenol-d5	3.87	99	70696	15.65	ppm	-0.02
Spiked Amount	50.000			Recovery	=	31.30%
25) Nitrobenzene-d5	4.98	82	150024	46.42	ppm	0.04
Spiked Amount	50.000			Recovery	=	92.84%
51) 2-Fluorobiphenyl	7.69	172	197330	44.82	ppm	-0.14
Spiked Amount	50.000			Recovery	=	89.64%
73) 2,4,6-Tribromophenol	9.98	330	21098	51.02	ppm	0.03
Spiked Amount	50.000			Recovery	=	102.04%
85) Terphenyl-d14	13.88	244	185546	47.72	ppm	0.03
Spiked Amount	50.000			Recovery	=	95.44%

Target Compounds	Qvalue
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## Quantitation Report (QT Reviewed)

Data File : C:\MSDCHEM\1\DATA\EP4488\P102315.D  
 Acq On : 2 Feb 2016 1:19 pm  
 Sample : op90850a-mbl  
 Misc : op90850a, ep4488, 1000  
 MS Integration Params: rteint.p  
 Quant Time: Feb 2 15:27 2016

Vial: 11  
 Operator: linseyk  
 Inst : MSP  
 Multiplr: 1.00

Quant Results File: MP4411.RES

Method : C:\MSDCHEM\1\METHODS\MP4411.M (RTE Integrator)  
 Title : Semi Volatile Extractables by GC/MS  
 Last Update : Wed Feb 03 09:25:07 2016  
 Response via : Initial Calibration

